

Research Product 81-8

TRAINING MATERIALS AND DATA REQUIREMENTS FOR UNIT CONDUCT OF FIRE TRAINER (U-COFT) TRAINING TEST SUPPORT PLAN

ARI FIELD UNIT AT FORT KNOX, KENTUCKY

August 1980

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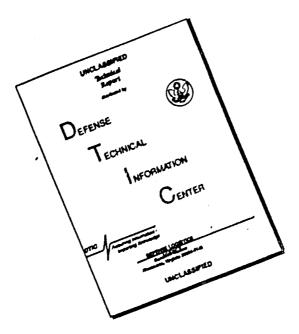
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The material presented in this training test support plan for the XMI U-COFT was developed for use during OT II to answer three of the operational issues asked in the IEP for the U-COFT, namely:

Issue 2.1.1 What is the training effectiveness of each of the three XMI training alternatives.

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- 20. (Continued)
- Issue 2.1.3 What is the transfer effectiveness of the three XMI training alternatives?
- Issue 2.1.4 What are the training resources required for each of the three XMI training alternatives?

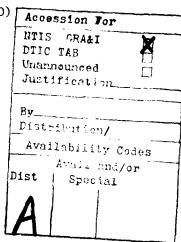
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TRAINING MATERIALS AND DATA REQUIREMENTS FOR UNIT CONDUCT OF FIRE TRAINER (U-COFT) TRAINING TEST SUPPORT PLAN

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August 1980

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Individual Training Technology

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The Fort Knox Field Unit of the Army Research Institute for the Behavioral and Social Sciences (ARI) carries out research and exploratory development in the area of Armor training. An objective of this work is to develop, through analytic and field research, tank crew and individual training methods that are effective and efficient.

The project of which this report is a part was conducted by personnel of the Human Resources Research Organization (HumRRO) under Contract No. MDA 903-79-C-0582 and monitored by Donald F. Haggard, Chief of ARI Field Unit at Fort Knox. The research was done under ARI FY78 Work Program, Army Project 2Q762722A777, Individual Training Technology, Task D: Technology for Front-End Analysis of Armor Systems, Work Unit 3: Simulation Characteristics of Armor Systems. The work is responsive to requirements of the US Army Armor School at Fort Knox, the Army Training and Doctrine Command, and the Army Forces Command.

JOSEPH WIDNER
Technical Director

SUMMARY

The material presented in this training TSP for the XM1 U-COFT was developed in response to the test concept for OT II to answer three of the operational issues asked in the IEP for the U-COFT. These answers will be used in the decision to continue into the production stage of the U-COFT and to select a production source. The three operational issues are:

- Issue 2.1.1 What is the training effectiveness of each of the three XMl training alternatives (in sustaining gunnery proficiency of XMl Gunners and Commanders)?
- Issue 2.1.3 What is the transfer effectiveness of the three XM1 training alternatives (in sustaining gunnery proficiency of XM1 Gunners and Commanders)?
- Issue 2.1.4 What are the training resources required for each of the three XM1 training alternatives?

The test concept for the XM1 U-COFT, developed to yield maximum data to address the IEP issues, incorporates three groups, as follows:

Group I XM1 tank sustainment training.

Group II: Chrysler U-COFT sustainment training.

Group III: General Electric (GE) U-COFT sustainment training.

In general, the training programs for Group II and Group III will be structured and follow the program of instruction and lesson plans as developed by the respective contractors (Chrysler and General Electric) for sustainment training. The baseline training program (Group I) will employ appropriate training media other than the U-COFT. The training design for the three sustainment training programs and the training resource requirements forms are in this document.

In order to evaluate the gunnery sustainment training program, data forms were prepared to collect data in three areas:

- . Training Resource Requirements (Issue 2.1.4).
- . Training Effectiveness (Issue 2.1,1).
- . Training Transfer (Issue 2.1.3).

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INTRODUCTION

Recognizing both the potential benefits and the potential risks associated with the use of training devices and simulators as adjuncts and substitutes for operational equipment, the Army has evolved a multi-tiered assessment policy, in which plans and devices are evaluated at successive phases of development, from concept evaluation to operational testing.

Certain parts of the Army's device-evaluation policy, namely the parts that deal with the design of baseline and experimental courses of instruction to address operational issues defined in the Independent Evaluation Plan (IEP), and the design and preparation of specifications for elements of the training test support plan (TSP) are interrelated to the extent that one part (the TSP) is "required" by the other part (the IEP).

The material presented in this training TSP for the XM1 UCOFT was developed in response to the test concept for OT II to answer three of the operational issues asked in the IEP for the UCOFT. These answers will be used in the decision to continue into the production stage of the UCOFT and to select a production source. The three operational issues are:

- Issue 2.1.1 What is the training effectiveness of each of the three XM1 training alternatives Xin sustaining gunnery proficiency of XM1 Gunners and Commanders 27?
- Issue 2.1.3 What is the transfer effectiveness of the three XM1 training alternatives (in sustaining gunnery proficiency of XM1 Gunners and Commanders 27752
- Issue 2.1.4 What are the training resources required for each of the three XM1 training alternatives?.

Author. Independent Evaluation Plan for XM1/M60 Series Unit Conduct of Fire Trainer. 13 June 1980.

² Author. XM1/M60 COFT Competitive Evaluation Plan. 15 October 1979.

ORGANIZATION

The training materials and data requirements are organized as follows:

- Chapter 1 Training Concepts for XM1 COFT
- Chapter 2 Data Requirements
- Appendix A XM1 Gunnery Engagement Categories
- Appendix B XM1 Gunnery Objectives
- Appendix C Training Resource Requirement Forms

CHAPTER ONE

TRAINING CONCEPTS FOR XM1 UCOFT

Overview

The test concept for the XM1 UCOFT, developed to yield maximum data to address the IEP issues, incorporates three groups. The three groups are:

Group I: XM1 tank sustainment training.

Group II: Chrysler UCOFT sustainment training.

Group III: General Electric (GE) UCOFT sustainment training.

In general, the training programs for Group II and Group III will be structured and follow the program of instruction and lesson plans as developed by the respective contractors (Chrysler and General Electric) for sustainment training. The baseline training program (Group I) will employ appropriate training media other than the UCOFT. The training design for the three sustainment training programs and the training resource requirement forms are in this document.

Training Design

The recommended training design for the three groups includes the sequences shown in Table 1. A pre-test will be given for the three groups on the XM1 to determine entry level job proficiency. Each group will be pre-tested on its respective device to determine the entry level proficiency on the device. Each group will then participate in its respective sustainment training program. The amount of time and resources necessary to meet the program objectives will be tracked during program administration. At the conclusion of training, each group will be post-tested on its respective device and then on the XM1. The data requirements for all phases of the program are presented in Chapter 2.

l Op. cit. 13 June 1980.

TABLE 1
RECOMMENDED TRAINING DESIGN

GROUP I (XM1 Tank)	GROUP II (Chrysler UCOFT)	GROUP III (GE UCOFT)
Pretest on XM1	Pretest on	Pretest on XM1
Pretest on device (XM1 Tank)	Pretest on device (Chrysler UCOFT)	Pretest on device (GE UCOFT)
Baseline developed training exercises	Contractor developed training exercises	Contractor developed training exercises
Posttest on device (XMl Tank)	Posttest on device (Chrysler UCOFT)	Posttest on device (GE UCOFT)
Posttest on XM1	Posttest on XM1	Posttest on XM1

Among the assumptions and qualifications made in the training plan design are that:

- 1. Tank Commanders and Gunners will have been transition trained on the 'M1 prior to assignment to a test group. Current plans call for the transition training program developed for the XM1-OT III to be used for this purpose. Since the crews from the XM1 OT III at Fort Hood may not be stabilized in order to participate in the UCOFT OT II, some soldiers may be assigned who have not undergone M6OAl to XM1 transition training. These soldiers must be transition trained in order to enter sustainment training.
- 2. Each soldier will train two hours per month for three months. It is expected that only actual training time will count against this time restriction. Set up time, firing range non-firing time (for Group I), and travel time, for example, will not count against the two hours per month. Neither, of course, will the pretest and posttest times.
- 3. The training content will be exclusively main gun, coaxial machinegun, and .50 caliber machinegun gunnery. The two hours per month for three months time restriction precludes formal practice on gunnery related tasks such as perform computer data check, perform computer self-test, perform superelevation check, and the like. The contribution of proficiency on these gunnery related tasks to proficiency on gunnery engagements should not be overlooked. Consideration should be given to providing time outside the confines of the OT II restrictions to practice formally these kinds of tasks. Detailed training objectives for gunnery related tasks and an explanation regarding their development and use are in a companion publication entitled Development of Training Objectives for XMI UCOFT1.
- 4. Much of the information pertaining to either or both UCOFT is proprietary in nature. As such, it cannot be duplicated, disclosed, or used except with permission of the respective contractor. Nothing proprietary in nature is contained in this document.

Harris, J.H., Campbell, C.H., Kraemer, R.E., and Bessemer, D.W. Development of Training Objectives for XM1 JCOFT. HumRRO/ARI, Working Paper. December 1979.

 Prior to pretest on the simulators, the crews will participate in the respective device orientations.

Test Participants and Dates 1

The test participants during OT II, and the dates of participation are as follows:

Position	Grade	Qua1	Number	Inclusive Dates	Source
Instructors	E5/E6	19K	12	T-30 to T+90	2/5 Cav, Ft Hood
Tank Commanders (TC)	E4/E5	19K	48	T to T+90	2/5 Cav, Ft Hood
Gunners	E4/E5	19K	48	T to T+90	2/5 Cav, Ft Hood
Loaders	E2/E3	19K	48 ²	T to T+90	2/5 Cav, Ft Hood
Drivers	E2/E3	19L	48 ²	T to T+90	2/5 Cav, Ft Hood

The arrangement of companies and platoons in the OT II test is shown in Table 2.

Training Materials

The domain of XM1 tank gunnery engagements can be broken down into discrete categories. Each category is broadly defined as a combination of the levels of six conditions, as follows:

- . Fire Control Mode Normal, Emergency, or Manual.
- . Method of Engagement Precision or Battlesight.
- . Laser Rangefinder Operative or Inoperative.
- . Gunner's Primary Sight Reticle Operative or Inoperative.
- . Thermal Imaging System Operative or Inoperative.
- . Lead Angle Sensor Operative or Inoperative.

After deleting combinations that are not rational, and combining into single categories combinations that have identical impact on gunnery, 31 categories remain. Table 3 presents the 31 engagement categories and the combinations of condition levels that define each. Each engagement category can be presented as in Figure 1 and Appendix A³, where the

Author. Outline Test Plan, XM1 Unit Conduct of Fire Trainers.
23 January, 1979, and conversation with DTD UCOFT POC, 4 August, 1980.

² Loaders and Drivers are required for the pretests and posttests on the XM1 for each group. Also, Loaders and Drivers are required for the Group I device pretest, gunnery portion of the sustainment training program, and the device posttest.

³ Gunnery with the .50 caliber machinegum is included although the conditions (excluding target range) have no impact on .50 caliber gunnery.

TABLE 2

ARRANGEMENT OF COMPANIES¹

AND PLATOONS FOR OT 11

.		GROUP I (XM1 Tank)	GROUP II (Chrysler UCOFT)	GROUP III (GE UCOFT)
	A	lst Platoon	2nd Platoon	3rd Platoon
AM	В	lst Platoon	2nd Platoon	3rd Platoon
COMPANY	С	1st Platoon	2nd Platoon	3rd Platoon
	D	1st Platoon	2nd Platoon	3rd Platoon

The structure of the XM1 tank battalion for OT III at Fort Hood, Texas includes four companies of three platoons each. The distribution of the tanks over the Battalion is:

Company A	13 tanks	(4 per platoon, plus CO tank)
Company B	13 tanks	(4 per platoon, plus CO tank)
Company C	13 tanks	(4 per platoon, plus CO tank)
Company D	13 tanks	(4 per platoon, plus CO tank)
Battalion HQ	3 tanks	(CO, XO, SMAJ)
	55 tanks	

OT II for the UCOFT evaluation requires 48 tanks (that is crews), as follows:

Company	A	12	tanks	(4	crews	per	platoon)
Company	В	12	tanks	(4	crews	per	platoon)
Company	С	12	tanks	(4	crews	per	platoon)
Company	D	12	tanks	(4	crews	per	platoon)
		48	tanks				

Battalion HQ tanks (3) and Company CO tanks (4) crews will not participate.

TABLE 3

XM1 TANK GUNNERY
ENGAGEMENT CATEGORIFS

	Fi	ire (Contr	ol S	Syste	m Fa	iluı	e at	
Fire Control Mode	None	GPS Reticle	TIS	GPS Reticle & TIS	Lead Angle	GPS Reticle & Lead Angle	TIS & Lead Angle	GPS Reticle & TIS & Lead Angle	
OPERATIVE LRF ENGAGEMENT NUMBER									
NORMAL					_		_		
Precision	1	2	3	-	5	6	7	-	
Battlesight	-	-	4	-	_	_	8	~	
EMERGENCY									
Precision	_	-	-	-	9	10	11	12	
Battlesight	-		-	(m)	-	-	13	14	1
MANUAL	l								
Precision	_	-	-	-	_	-	-	15	
Battlesight	-	-	-	-	-	-	-	16	İ
INOPERATIVE LRF									
Precasion	17	18	19	-	20	21	22	-	
Battlesight	23	24	4	-	25	26	8	-	
EMERGENCY									
Prec:.sion	-	-	-	-	27	28	29	12	
Batt".esight	-	-	-	-	30	31	13	14	
MANUAL	, 								
Precision	-	-	-	-	-	-	-	15	
Battlesight	-	-	-	-	-		_	16	

FIRE DELIVERY METHOD: NORMAL PRECISION ENGAGEMENT CATEGORY: 1

			OWN T	ANK			
WEAPON	TAN	K MOTION		TURRET	•	CONTROLS	
MG + COAX + .50 CAL +		+		STAB _		POWER _+ MANUAL	
	GPS	TIS	LRF	LEAD	CROSSWIND	CANT	
FUNCTION	+	+	+	_+_	+	+	
MALFUNCTION							

TARGET												
TGT MOTION	TGT NUMBER	RANGE	<u>vis</u>									
M <u>+</u> s <u>+</u>	SINGLE + SIMUL + MULT +	MED (500-1500) + LONG (1501-3000) +	VIS + VIS/TIS +									

Figure 1. Sample display for engagement category 1.

possible status of conditions for own tank and target are given by a + in the appropriate condition level. The conditions included in Table 3 and Appendix A are those that can be evaluator controlled in training or testing. Included in the Appendix is a set of assumptions/conditions for EM1 gunnery and a list of fire control system "things."

A finite number of gunnery objectives can be derived in each engagement category by multiplying by each other the number of allowable (those with a +) condition levels in each category. For example, multiplying the allowable condition levels in Category 1 results in 72 possible objectives. Some combinations of conditions make no sense, however, and can be eliminated out of hand; for example, an objective having machinegun targets at long range. Rather than derive all possible objectives for each category and then select a sample for training, only three objectives for each were derived. In this way, since there are no more than three levels of condition for any one condition, all the allowable condition levels for an engagement category are included at least once in the three objectives. The 93 gunnery objectives are displayed in Appendix B^2 . These objectives are the material for pretesting, sustainment training, and posttesting for all three test groups. Two example objectives are at Figures 2 and 3. objective, for engagement Category 1, can be stated as follows:

> Given an XMl tank that is moving and has no fire control system failures, and a target at long range that is visible during laylight, and moving, the crew will neutralize the target.

The objective for the example in Figure 3 is from Engagement Category 7 and can be written as:

Given an XM1 tank that is moving and has a malfunctioning TIS and lead angle sensor, and a main gun target at long range and a coaxial machinegun target at medium range that are both visible during daylight, and moving, the crew will neutralize the target.

¹ A list of reports describing thoroughly the concept of the domain of gunnery and its utility is given in Table 4.

Gunnery with the .50 caliber machinegum is included although the conditions (excluding target range) have no impact on .50 caliber gunnery.

TABLE 4

REPORTS DESCRIBING THE DOMAIN OF GUNNERY

1. Kraemer, k.E., Boldovici, J.A., and Boycan, G.G.

Job Objectives for M60AlAOS Tank Gunnery Compared

To Proposed Training. Volume 1: Development

and Results. Arlington, Virginia: U.S. Army

Research Institute for the Behavioral and Social

Sciences (ARI), 1975.

Describes the need for sampling objectives for training and evaluation, and early efforts to map the gunnery domain.

- Fingerman, P.W., Wheaton, G.R., and Boycan, G.G.
 <u>Simulation of a Model Tank Gunnery Test.</u>
 Alexandria, Virginia: U.S. Army Research
 Institute for the Behavioral and Social Sciences
 (ARI), 1979.
- 3. Wheaton, G.R., Fingerman, P.W., and Boycan, G.G.

 Development of a Model Tank Gunnery Test.

 Alexandria, Virginia: U.S. Army Research
 Institute for the Behavioral and Social Sciences
 (FRI), 1978.

Items 2 and 3 describe additional development of early work, with emphasis on simulation and varieties of tests matched with evaluation purposes.

4. Boldovici, J.A., Boycan, G.G., Fingerman, P.W., and Wheaton, G.R. Tank Gunnery Data Handbook. Washington, D.C.: American Institutes for Research in the Behavioral Sciences (AIR), 1978.

Gunnery objective pools for the M60A1(AOS).

5. Boldovici, J.A. Analyzing Tank Gunnery Engagements for Simulator-Based Process Measurement. Alexandria, Virginia: Human Resources Research Organization (HumRRO), 1978.

Describes the need and some analyses required for incorporating diagnostic capability in gunnery devices.

. LEE DELIVERY METHOD: NORMAL PRECISION

ENGAGEMENT CATEGORY: 1

OBJECTIVE: 1A

		OWN TANK		
WEAPON	TANK MOTION	TURRET	CON	TROLS
1 MG	M +	STAE	POWI	
COAX .50 CAL	s	NONSTAB _	MANT	UAL
: !	GPS TIS	LRF 1.EAD	CROSSWIND	CANT
FUNCTION MALFUNCTION	<u>+</u> +	<u>+</u> <u>+</u>	<u>+</u>	-
1		TARGET		
TGT MOTION	TGT NUMBER	RAN	GE	VIS
м <u>+</u> s <u>—</u>	SINGLE + SIMUL	MED (500-1 LONG (1501	500) V: -3000) V:	IS <u>+</u> IS/TIS
		CRITERIA		
TIME (Seconds)				
Main Gun Engageme	nts			TC GNR
From start of fin From Gunner "Iden From Gunner "Not From TC "Fire" to From TC completion	eure to start of in e command to finis tify" to select an Identified" to sel first round fired on of lase to first impact to second to	sh of lay for dir nmo, lay, track, lect ammo, lay, t d: round fired:	ection: and lase: rack, and lase:	or
.50 Caliber Engag	ements			
From target expos	ure to target supp	oression:		
Coax Engagements				
From Start of fir From Gunner "Ider	ure to start of fine command to finistify" to select coacking to target s	sh of lay for dire bax, day, track:	ection:	
AIMING ERROR				
Dry Fire-Main Gu	<u>. </u>		First Round	Second Round
Elevation error f Deflection error	from center of mass rom center of mass from base of target rom base of target	<pre>c (Precision): et (Battlesight):</pre>	mils mils mils mils	mils mils mils mils
Live Fire-Main Gu	n, Coax, .50 Calib	per	Rounds	
Main Gun Coax				
.50 Caliber				
F	igure 2. Sample d	isplay for object:	lve 1A.	

ENGAGEMENT CATEGORY: 7

OBJECTIVE: 7C

		OWN TANK		
WEAPON	TANK MOTION	TUERE	<u>T</u>	CONTROLS
$\frac{MG}{COAX} = \frac{+}{+}$	[™] + + + + + + + + + + + + + + + + + + +	STAI: NONSTA	+	POWER + MANUAL
.50 CAL	S	NONSIA	<u> </u>	PIANUAL
	and mre	* " * * * * * * * * * * * * * * * * * *	n encer	ITATO CANT
	GPS TIS	LRF LEA	D CROSSW	IND CANT
FUNCTION MALFUNCTION	+ +	-+ -+		+
		EADCES .		
	mom 1770 FD	TARGET	21125	777.5
TGT MOTION	TGT NUMBER	•	RANGE	VIS
M _+_	SINGLE SIMUL		0-1500) <u>+</u> 501-3000) +	VIS +
	MULT +			
		CRITERIA		
TIME (Seconds)				
Main Gun Engageme	nts			TC GNR
From Start of fir From Gunner "Iden From Gunner "Not From TC "Fire" to From TC completio	ure to start of i e command to fini tify" to select a Identified" to se first round fire n of lase to firs impact to second	sh of lay for mmo, lay, trac lect ammo, lay d: tround fired:	direction: k, and lase: , track, and	
.50 Caliber Engag	ements			
From target expos	ure to target sup	pression:		
Coax Engagements				
From start of fir From Gunner "Iden	ure to start of f e command to fini- tity" to select e acking to target	sh of lay for oax, lay, true		
AIMING ERROR				
Dry Fire-Main Gun			First Ro	und Second Round
Deflection error f Elevation error f Deflection error Elevation error f	rom center of mas from base of targ	s (Precision): et (Battlesigh	mi	ls mils m
Live Fire-Main Gu	n, Coax, .50 Cali	<u>ber</u>	Rounds	
Main Gun				
Coax .50 Caliber				

Included on the display for each objective are the scoring criteria for both live fire and dry fire. No time standards have been established; however, the events of interest between which times should be recorded are stated. An accuracy standard of a target hit (main gun) or target suppression (machinegum) within a cost standard of two main gun rounds or 25 machinegum rounds is recommended for each objective.

These objectives were derived to allow for evaluator control for all three training groups in terms of weapon firing, conditions of the fire control system, the fire control mode, and the types of target and ranges for an ergagement. The firing ranges for the XMI pretest and posttest and for Group I firing must be set up so that the objectives can be fired as described. This involves arranging appropriate combinations of target types and ranges in specified numbers (single, simulcaneous, multiple) at the various firing positions. At the same time, depending on the objective being fired, the evaluator must introduce the indicated malfunction(s) into the fire control system. The malfunction(s) should be introduced in such a way that the Gunner and TC will be unaware until the malfunction occurs at the "real world" point in the engagement sequence.

The remainder of this section describes the recommendations for conduct of the XM1 pretest, device pretest, training exercises, device posttest, and XM1 posttest for all three groups.

XM1 Pretest. The following objectives should be used as the content of the XM1 Pretest:

2A	19B
3A	24A
11C	25C
168	2813
17C	30B

The crews should fire each objective only once and the times and aiming errors should be recorded (see Chapter 2).

<u>Device Pretest</u>. The following objectives should be used as the content of the Device Pretest:

1A	15B
4C	22C
5B	24B
9C	26C
11R	31A

The crews should fire each objective only once and the times and aiming errors should be recorded (see Chapter 2).

Training Exercises. All 93 objectives should be practiced in numerical order during the six hours available. However, a crew should practice an objective until it achieves mastery on the objective or fires the objective three times before proceeding to the next objective. The firing information that should be recorded is discussed in Chapter 2.

<u>Device Posttest</u>. In the interests of test security, the objectives recommended for device posttest will remain confidential until two weeks before the posttest. As for the device pretest, each objective should be fired only once and the information recorded.

XM1 Posttest. In the interests of test security, the objectives recommended for XM1 posttest will remain confidential until two weeks before the posttest. The procedure will be for each crew to fire an objective until achieving mastery (or until the objective is fired five times) before proceeding to the next objective on the posttest. All firing information should be recorded for each attempt.

CHAPTER TWO DATA REQUIREMENTS

In a der to evaluate the gunnery sustainment training program, data are needed in three areas:

- . Training Resource Requirements (Tssue 2.1.4).
- . Training Effectiveness (Issue 2.1.1).
- . Training Transfer (Issue 2.1.3).

Training Resource Requirements

This information will be used to estimate the costs associated with developing and implementing each of the three training alternatives.

The forms provided in Appendix C should be used to report the information. Explanations of the entries required for each form follow.

Personnel Requirements. This form should be completed for each person involved in setting up or running any part of the gunnery sustainment training program. Give the person's name, rank/grade, and primary MOS. Ther for each function in which the person was involved (Planning, Development, Conduct, and/or Evaluation) and each training group for which the person performed that function (Group I, II, or III), place a P (Primary) of S (Support) in the column headed "Role" to indicate the person's responsibilities. In the column headed "Time" indicate the number of hours the person spent on that function/training group/ role.

The functions are defined as follows:

- " Planning " scheduling, determining requirements for and obtaining personnel and equipment, logistics, etc.
- . Development writing and review of lesson plans, scenarios, test materials, etc.
- . Conduct actual training time.
- Evaluation pretesting and positesting on XM1 and training alternative devices.

The three training groups are:

- . Group I baseline training group, on XMI tanks.
- . Group II training on Chrysler UCOFT.
- . Group III training on GE UCOLT.

The two roles are defined as follows:

- Primary directed or was responsible for major portions of the work in a given function.
- . Support assisted or was under the supervision of someone in a primary role. If the person was not involved in a function for a training group, the corresponding lines in the "Role" and "Time" columns should be left blank.

If the effort is for more than one training group or function, record the hours in as many places as are applicable, and attach a note telling how many hours have been recorded in more than one place, and for which groups and functions they are recorded.

Crew Training Report Form. This form should be completed for each gunner/commander crew. The header portion requires the training group, the assigned crew number (any number up to three digits), name of each crewmember, the date each crewmember completed transition training on the XM1, how long each has been in that crew position, and how many times they have fired together in those positions.

The body of the form is to be used to lcg the crew's activities during training. For each objective on which the crew receives training, record the date and time the crew started training on the objective, the date and time it was mastered, total number of attempts, and the total time spent on the objective. The objectives to be included in training, and the criteria for mastery, are discussed in Chapter 1 and included in Appendix B.

For Group I, trained on the XM1 tank, if the training is conducted as dry fire exercises, a gun camera that permits immediate feedback for scoring aiming errors (deflection and elevation) on main gun engagements will be required so that the hit-miss judgment can be made in time to fire a second round. For live fire and for coaxial and .50 caliber engagements, the scoring will be based on hits or suppression, rather than deflection and elevation. Times will be determined to the nearest second with the aid of a stopwatch. For Groups II and III, trained on the Chrysler and GE UCOFTs respectively, data required to determine mastery should be taken from performance analyses obtained

at the conclusion of each objective. The Gunnery Objective Scoresheet in Appendix C may be used to keep track of the crew's progress toward mastery. For each objective, a scoresheet should be prepared by completing the column headed "Mastery Standards" for the applicable criteria for the objective.

Training Effectiveness

Relative training effectiveness of the three alternative programs will be measured by means of comparisons between pre- and post-training test results. Each crew will be tested at both points on the device (XM1 tank, Chrysler UCOFT, or GE UCOFT) on which it receives gunnery sustainment training. The objectives which comprise the tests and the measurement requirements for each objective are discussed in Chapter 1.

Devite pretest and posttest results for each crew should be recorded on the Guinery Objective Scoresheets. The data are to be obtained as described above, with the aid of a gun camera (for dry fire) and a stopwatch for Group I, and from UCOFT performance analyses for Groups II and III. Actual times (seconds), and aiming error (mils deflection and elevation or hi:/suppression and rounds expended) should be recorded for each objective.

Training Transfer

The relative effectiveness of the three training alternatives in increasing profeciency on the XM1 tank (i.e., training transfer) will be expressed as the difference among the three training groups in number of trials needed to master certain task objectives. A pretest on the XM1 tank will be given before the device pretest, to determine entry tovel skills. The transfer test itself will be conducted after the device posttest, also on the XM1 tank. Conduct of the XM1 pretests and posttests is discussed in Chapter 1.

For the XML pretest, the measures should be recorded as for the device pretests and posttests. For the XML posttest, the measures should be recorded in the same way for each attempt of an objective by the crew. Each objective must be attempted until mastery is demonstrated on all criteria measures, or until five attempts are made.

APPENDIX A

XM1 GUNNERY ENGAGEMENT CATEGORIES

ASSUMPTIONS/CONDITIONS XM1 GUNNERY ENGAGEMENT CATEGORIES AND OBJECTIVES

The following assumptions/conditions regarding the XM1 fire control system apply to the engagements:

- 1. When GPS is the preferred sight, and TIS is also available, Visible/TIS is a visibility alternative. (Engagement Categories 1, 5, 9, 17, 20, 23, 25, 27, 30).
- 2. When TIS is the preferred sight, Visible/TIS is the visibility alternative. No other visibility level is required because all are subsumed by use of the TIS.
- 3. A TIS failure includes:
 - . no range data displayed
 - . no symbol data displayed
 - . no TI's reticle displayed

When the TI3 fails and the LRF is operational, range with the LRF and check range manually (Engagement Categories 3, 7, 11).

- 4. An LRF failure refers only to the ranging capability, not the reticle projection.
- When LEAD fails, target motion is described as Moving; troop targets and APERS ammunition are excluded.
- 6. GAS Battlesight (Engagement Categories 14, 16) is battlesight only to the extent that the Gunner uses battlesight GAS range lines (700, 1100, 1600). There is no preset battlerange with the GAS.
- 7. LRF, CROSSWIND, CANT are malfunctioning to the extent that GAS is used for Engagement Categories 12, 14, 15, 16, and manual cant and crosswind are applied and range is put in computer manually or battlesight is fired.
- 8. Precision gunnery is fired with own tank moving.
- Emergency mode gunnery has no impact on coaxial machinegun firing.

XM1 FIRE CONTROL SYSTEM

- 1. Rad GPS day reticle pattern is generated in the LRF.
- 2. Target range data is provided by the LRF but generated in the TIS.
- Ready-to-fire, multiple return, and malfunction are generated in the TIS.
- 4. For the GAS reticle:
 - . use reticle range lines for precision
 - . use reticle lead lines to lead target

GAS Ranges		GAS Battlesight Ran		
HEAT 400-	4400M	HEAT	1100M	
SABOT 800-	2800M	SABOT	1600M	
HEP 350-	2800M	HEP	700M	

- . battlesight corrections are given in target forms.
- 5. Automatic lead is used only in NORMAL mode; in other modes, manual lead must be applied.
- 6. Lead angle sensor failure:
 - . lay GPS (GAS) on center of moving target and range
 - . apply lead, using lead lines in GPS (GAS), from center of mass of target in direction of movement.
- 7. Laser rangefinder failure:
 - . manually index range data into computer
 - or . use GAS
 - or . use battlesight gunnery.
- 8. GPS failure:
 - . use TIS; if out
 - . use GAS.

KEY TO ABBREVIATIONS

Main Gun MG

Coaxial Machinegun COAX

.50 Caliber Machinegun .50 CAL

Moving M

Stationary S

Stabilization STAB

Nonstabilization NONSTAB

Gunner's Primary Sight GPS

Thermal Imaging System TIS

Laser Rangefinder LRF Lead Angle Sensor LEAD

Simultaneous SIMUL

Multiple MULT Medium MED

Visible without artifical light (during daylight) VIS

Visible with thermal imaging system VIS/TIS

FIRE DELIVERY METHOD: NORMAL PRECISION ENGAGEMENT CATEGORY: 1

OWN TANK						
WEAPON	TAN	K MOTION		TURRET		CONTROLS
MG + CCAX + .50 CAL +	M S	+		STAB _ NONSTAB _		POWER + MANUAL
	GPS	TIS	LRF	LEAD	CROSSWIND	CANT
FUNCTION MALFUNCTION	+	+	+	+	+	+

	TA	RGET	
TGT MOTION	TGT NUMBER	RANGE	VIS
· s <u>+</u>	SINGLE + SIMUL + MULT +	MED (500-1500) + LONG. (1501-3000) +	VIS + VIS/TIS +

FIRE DELIVERY METHOD: NORMAL PRECISION

ENGAGEMENT CATEGORY: 2

			OWN T	ANK		
WEAPON	TANK	MOTION		TURRET		CONTROLS
MG + COAX + .50 CAL +	M _ S _	<u>+</u> ·		STAB NONSTAB	<u>+</u> 	POWER + MANUAL
•	GPS	TIS	LRF	LEAD	CROSSWINI	CANT
FUNCTION MALFUNCTION	+	+	+	+	+	-

	TA	RGET	
TGT MOTION	TGT NUMBER	RANGE	VIS
M _ + . s _ + .	SINGLE + SIMUL + MULT +	MED (500-1500) + LONG (1501-3000) +	VIS

FIRE DELIVERY METHOD: NORMAL PRECISION

ENGAGEMENT CATEGORY: 3

OWN TANK						
WEAPON	TAN	K MOTION		TURRET		CONTROLS
MG + COAX + .50 CAL +	M S	+		STAB _ NONSTAB _	+	POWER _+ MANUAL
	GPS	TIS	LRF	LEAD	CROSSWINI	CANT
FUNCTION MALFUNCTION	+	+		+	+	+

	TA	RGET	
TGT MOTION	TGT NUMBER	RANGE	VIS
M <u>+</u> S <u>+</u>	SINGLE + SIMUL + MULT +	MED (500-1500) + LONG (1501-3000) +	VIS ± VIS/TIS

FIRE DELIVERY METHOD: NORMAL PRECISION

ENGAGEMENT CATEGORY: 4

OWN TANK					
WEAPON	TANK MOTIO	N TURRET	<u>C</u> C	ONTROLS	
MG + COAX + .50 CAL +	M <u>+</u> S	STAB NONSTAB		OWER	
	GPS TIS	LRF LEAD	CROSSWIND	CANT	
FUNCTION MALFUNCTION	+ +	+ +	+	+	

	TA	RGET	
TGT MOTION	TGT NUMBER	RANGE	VIS
M <u>+</u> S <u>+</u>	SINGLE + SIMUL + MULT +	MED (500-1500) + LONG (1501-3000) +	VIS + VIS/TIS

OWN TANK						
WEAPON	TANK MOTION		TURRET	CON	TROLS	
MG + COAX + .50 CAL +	M + S		STAB +	_ Pow Man		
•	GPS TIS	LRF	LEAD	CROSSWIND	CANT	
FUNCTION MALFUNCTION	+ +	+	+	+	+	

TARGET						
TGT MOTION	TGT NUMBER	RANGE	VIS			
M <u>+</u> S <u>+</u>	SINGLE + SIMUL + MULT +	MED (500-1500) LONG (1501-3000)	VIS + VIS/TIS +			

OWN TANK						
WEAPON	TAN	MOTION		TURRET		CONTROLS
MG + COAX + .50 CAL +	M S			STAB _ NONSTAB _	<u>+</u> 	POWER MANUAL
•	GPS	TIS	LRF	LEAD	CROSSWIN	D CANT
FUNCTION MALFUNCTION		+	+	+	+	+

TARGET						
TGT MOTION	TGT NUMBER	RANGE	VIS			
M _+_	SINGLE	MED (500-1500) +	vis			
S <u>+ (.50 CAL)</u>	SIMUL + MULT +	LONG (1501-3000)	VIS/TIS			

OWN TANK						
WEAPON	TANK MOTION	TURRET	CON	TROLS		
MG + COAX + .50 CAL +	M <u>+</u> S	STAB NONSTAB	_+ Pow	TER		
	GPS TIS	LRF LEAD	CROSSWIND	CANT		
FUNCTION MALFUNCTION	<u>+</u> <u>+</u>	<u>+</u> +		<u>+</u>		

TARGET						
TGT MOTION	TGT NUMBER	RANGE	VIS			
M <u>+</u> s <u>+ (.50 CAL)</u>	SINGLE + SIMUL + MULT +	MED (500-1500) LONG (1501-3000)	VIS			

FIRE DELIVERY METHOD: NORMAL PRECISION ENGAGEMENT CATEGORY: 8

		OWN TANK	
WEAPON	TANK MOTION	TURRET	CONTROLS
MG + COAX + .50 CAL +	M <u>+</u> S	STAB _ NONSTAB _	+ POWER + MANUAL
	GPS TIS	LRF LEAD	CROSSWIND CANT
FUNCTION	+	+	+ +
MALFUNCTION	+	+	

TARGET						
TGT MOTION	TGT NUMBER	RANGE	VIS			
M <u>+</u>	SINGLE +	MED (500-1500) +	VIS <u>+</u>			
S + (.50 CAL)	SIMUL + MULT +	LONG (1501-3000)	VIS/TIS			

		OWN TANK		
WEAPON	TANK MOTIC	DN TURRET	CON	TROLS
MG + COAX + .50 CAL +	M S	STAB NONSTAB _	+ MAN	TER +
	GPS TIS	LRF LEAD	CROSSWIND	CANT
FUNCTION MALFUNCTION	+ +	+ +		_±_

	TARGET						
TGT MOTION	TGT NUMBER	RANGE	VIS				
M _+ S _+ (.50 CAL)	SINGLE + SIMUL + MULT +	MED (500-1500) + LONG (1501-3000) +	VIS + VIS/TIS +				

OWN TANK						
WEAPON	TANK MOTI	ON TURRET	CONTI	ROLS		
MG + COAX + .50 CAL +	м s_+	STAB _ NONSTAB _	+ MANUA	I		
,	GPS TIS	LRF LEAD	CROSSWIND	CANT		
FUNCTION MALFUNCTION	+	+ +	+	_ 		

TARGET						
TGT MOTION	TGT NUMBER	RANGE	VIS			
M _ + S _ + (.50 CAL)	SINGLE + SIMUL + MULT +	MED (500-1500) + LONG (1501-3000) +	VIS VIS/TIS			

OWN TANK					
WEAPON	TANK MOTION	TURRET	CONTROLS		
MG <u>+</u> COAX + .50 CAL +	M S _+_	STAB NONSTAB +	POWER + MANUAL		
•	CPS TIS	LRF LEAD	CROSSWIND CANT		
FUNCTION MALFUNCTION	+ + +	+ +	+ +		

TARGET						
TGT MOTION	TGT NUMBER	RANGE	VIS			
M _+ S _+ (.50 CAL)	SINGLE + SIMUL + MULT +	MED (500-1500) +	VIS			

OWN TANK					
WEAPON	TANK MOTION		TURRET	co	ONTROLS
MG + COAX + .50 CAL +	M S _+_		STAB		WER <u>+</u> NUAL
	GPS TIS	LRF	LEAD	CROSSWIND	CANT
FUNCTION MALFUNCTION	+ +	+	+	<u>.</u>	

TARGET						
TGT MOTION	TGT NUMBER	RANGE	VIS			
M _+ S _+ (.50 CAL)	SINGLE + SIMUL + MULT +	MED (500-1500) + LONG (1501-3000) +	VIS			

FIRE DELIVERY METHOD: EMERGENCY BATTLESIGHT ENGAGEMENT CATEGORY: 13

		OWN TANK	
WEAPON	TANK MOTION	TURRET	CONTROLS
MG + COAX + .50 CAL +	M S _+_	STAB	POWER + MANUAL
	GPS TIS	LRF LEAD	CROSSWIND CANT
FUNCTION MALFUNCTION	+ +	+ + +	<u>+</u> <u>+</u> .

TARGET							
TGT MOTION	TGT NUMBER	RANGE	VIS				
M + s + (.50 CAL)	SINGLE + SIMUL + MULT +	MED (500-1500) + LONG (1501-3000) +	VIS				

OWN TANK						
WEAPON	TANK MOTION	TURRET	<u> </u>	ONTROLS		
MG + COAX + .50 CAL +	M S _+_	stab Nonstai		OWER +		
,	GPS TIS	LRF LEAD	CROSSWIND	CANT		
FUNCTION MALFUNCTION	+ +	+ +				

TARGET							
TGT MOTION	TGT NUMBER	RANGE	VIS				
M + S + (.50 CAL)	SINGLE + SIMUL + MULT +	MED (500-1500) + LONG (1501-3000) +	VIS + VIS/TIS				

FIRE DELIVERY METHOD: MANUAL PRECISION ENGAGEMENT CATEGORY: 15

OWN TANK						
WEAPON	TAN	K MOTION		TURRET	<u>.</u>	CONTROLS
MG + COAX + .50 CAL +	M S			STAB NONSTAB		Power
•	<u>GPS</u>	TIS	LRF	LEAD	CROSSWIND	CANT
FUNCTION MALFUNCTION	+	+	+	+	+	

	TARGET							
TGT MOTION	TGT NUMBER	RANGE	<u>vis</u>					
M + S + (.50 CAL)	SINGLE + SIMUL + MULT +	MED (500-1500) + LONG (1501-3000) +	vis + vis/Tis					

FIRE DELIVERY METHOD: MANUAL BATTLESIGHT

OWN TANK						
WEAPON	TAN	K MOTION		TURRET		CONTROLS
MG + COAX + .50 CAL +			NONSTAB + MANUAL +		POWER	
,	<u>CPS</u>	TIS	LRF	LEAD	CROSSWIND	CANT
FUNCTION MALFUNCTION	+	+	+	<u>+</u>	<u> </u>	_ <u>+</u> _

	TA	RGET	
TGT MOTION	TGT NUMBER	RANGE	VIS
M + S + (.50 CAL)	SINGLE + SIMUL + MULT +	MED (500-1500) + LONG (1501-3009) +	VIS + VIS/TIS

FIG. DELIVERY METHOD: NORMAL PRECISION ENGAGEMENT CATEGORY: 17

The state of the s			T' NWO	ANK		garinga - Progressia garakangan di Maria dan Salah dan Salah dan Salah dan Salah dan Salah dan Salah dan Salah Salah dan Salah dan
WEAPON	TAT	K MOTION		TURRET	-	CONTROLS
MG	P S	±		STABNONSTAB		POWER +
! :	CPS	TIS	LRF	I.EAD	CROSSWIND	<u>CV3/1.</u>
MALFUNCTION	+	+	+	+	+	+

	TARGET						
TGT MOTION	TGT NUMBER	RANGE	VIS				
M +	SINGLE +	MED (500-1500) +	vis <u>+</u>				
S <u>+</u>	SIMUL + MULT +	LONG (1501-3000) +	vis/tist_				

FIRE DELIVERY METHOD: NORMAL PRECISION ENGAGEMENT CATEGORY: 18

OWN TANK TURRET WEAPON TANK MOTION CONTROLS MG <u>+</u> M <u>+</u> STAD + POWER ____ COAX 1 8 NONSTAB ____ MANUAL ____ .50 CAL + GPS TIS LRF LEAD CROSSWIND CANT FUNCTION MALFUNCTION

1	TA	RGI T	
TGT MOTION	TOT NUMBER	RANGE	VIS
M +	SINGLE +	MED (500-1500) +	VIS
s <u>+</u>	SIME, +	LONG (1501-3000) +	VIS/TIS _+

TIRE DELIVERY METHOD: NORMAL PRECISION ENGAGEMENT CATEGORY: 19

OWN TANK							
WEAPON	TANK MOTION		TURRET		NTHOLS		
MG +	M <u>+</u>		STAB +		WER ±		
COAX +	s		NONSTAB	MAI	NUAL		
.50 CAL +							
	GPS TIS	LRF	LEAD	CROSSWINT	CANI		
FUNCTION	+		+	+	T		
MALFUNCTION	+	+					

	TA	RGET	
TGT MOTION	TGT NUMBER	RANGE	VIS
<u> </u>	SINGLE +	MED (500-1500) +	
s <u>+</u>	SIMUL MULT+	LONG (1501-3000) +	VIS/TIS
			Angelia de la Paris de la Pari

MULAE DELIVERY METHOD: NORMAL PRUCISION ENGAGEMENT CATEGORY: 26

			OWN TA	ANK		
MEAPON	TAN	MOTION		TURRET	<u>c</u>	ONTROLS
MG	M	4.		STAB _	<u>+</u> P	OWEF +
COAX	5			NONSTAB _		MAUMAL
.50 CM+						
	<u>CPS</u>	TIS	LRF	<u>LEAD</u>	CROSSWIND	CANT
FUNCTION	+	4	· Samuelanderica es	Walters	+	+
MALFUNCTION			+			

ļ		TA	RGET	
	TGT MOTION	TGT NUMBER	RANGE	<u>vis</u>
:	M ÷	SINGLE +	MED (500-1500) ÷	V18 +
;	S <u>+ (</u> .50 JAL)	SIMUL +	Long (1501-3000) <u>+</u>	vis/tis <u> </u>

			OWN I	ANK		
WEAFON	TAN	K MOTION		TURRET	<u>(</u>	CONTROLS
MG	M	4		STA3	<u>+</u> F	OWER
COAX +	S			nonstab _		IANUAL
.50 CAL						
	GP\$	TIS	LRF	LEAD	CROSSWIND	CANT
FUNCTION					+	+
MALFUNCTION	+	-	+	+	e grand d esse	

	TA	RGET	· · · · · · · · · · · · · · · · · · ·
TGT MOTTON	TGT NUMBER	RANGE	<u>vis</u>
M <u>+</u> (.50 JAL)	SINGLE + SINUL + MULT +	MED (500-1500) + LONG (1501-3000) +	

THE BULLIVERY METHOD: NORMAN PRINCISION

and the second s				OWN I	ANK			-
WEAP	<u>on</u>	TAN	K MOTION		TURRET		CONTROLS	
Pasi		ÿ	1 -1		STAB	+	POWER +	
00X .20 0c.	1 1	S			NONSTAB		MANUAL	
		GPS	TIS	LRF	LEAD	CROSSWIND	CANT	
FUNCTIO	7	7		-		+	٠ <u>٠</u> .	
MALL UNC	TRON		1-	+	+	Application of	openitor, a separation on	

:	rten for uniformit, i vivin i un uniformit etc vi est di regioni contribucioni di este etc.	TA	ARGET	and the same and t
1	TCT MOTION	TGT_NUMBER	RANCE	<u>v18</u>
:		SINGLE +	MED (500-1500) +	:
ì	S (.50 CAL)	SIMUL + MULT +	LONG (1501-3000) ±	1 15 1 1 1 1 5 1 1 1 1 1 1 1 1 1 1 1 1
	n and a simple dependency of the second of t			i Santananan ing panganananan na santananan

WIRE DELIVERY METHOD: NORMAL SATTLESIGET ENGAGEMENT CATEGORY: 23

		OWN I	`ANK		
WEAPON	TANK MO	TION	TURRET	<u>co</u>	NTROLS
MC ±	K _+	_	STAB	<u>+</u> _ PC	WER +
COAX	S		nonstab _	MA	NUA.
.50 Cab. +					
	GPS I	IS LRF	LEAD	CKOSSWIND	<u>CANT</u>
FUNCTION	+ -		-	· -	+
MALFUNCTION		+	***************************************	-	

TARGET						
TGT MOTION	TGT NUMBER	RANGE	VIS			
M	SINGLE _ +	MED (500-1500)	VIS			
s +	SIMUL +	LONG (1501-3000) +	VIS/TIS _+			
	MULT +					

TIRE DELIVERY METHOD: NORMAL BATTLESIGHT ENGAGEMENT CATEGORY: 27

			OWN T	ANK.		
WEAPON	TAN	K MOTION		TURRET	2	CONTROLS
MG	M S	+		STAB _ NONSTAE _		POWER
	GPS	TIS	LRF	LEAD	CROSSWIND	CANT
FUNCTION NAL PUNCTION	+		+	+	t	

	TA	RGET	
TCT MOTION	TCT NUMBER	RANGE	VIS
11 _+	SINGLE +	MED (500-1500)	VIS
S <u>+</u>	S IMUI. +	LONG (1501-3000)	VIS'TIS
?	MULT ±		; }

THE DELIVERY METHOD: NORMAL BATTLESIGHT ENGAGEMENT CATEGORY: 25

		OWN	TANK	TO THE STATE OF TH		
WEAPON	TANK MOTION		TURRET	<u>co:</u>	NTROLS	; ;
MG <u>+</u> COAX + .50 CAL +	M <u>+</u> S		STAB +		NUAL	
FUNCTION MALFUNCTION	<u>GPS</u> <u>TIS</u> + +	LRF +	LEAD +	CROSSWIND +	<u>CANT</u> +	

	TA	ARGET	
TGT MOTION	TGT NUMBER	RANGE	VIS
S + (.50 CAL)	SINGLE + SIMUL +	MED (500-1500) + LONG (1501-3000) +	VI(E
, , , , , , , , , , , , , , , , , , ,	MULT +	TONG (1301-3000)	VIO/115

FIRE DELIVITRY METHOD: NORMAL BATTLESIGHT ENGAGEMENT CATEGORY: 26

OWN TANK							
WEAPON	TANK MOTION		TURRET	<u>c</u>	ONTROLS		
MG + COAX + 50 CAL +	M + S		STAB +		ower + anual		
FUNCTION	GPS TIS	LRF	LEAD	CROSSWIND	CANT +		
MALFUNCTION	+	+	+				

	TA	RGET	
TGT MOTION	TGI NUMBER	RANGE	VIS
M 7 (250 DAL)	SINGLE + SIMUL + MULT +	MED (500-1500) + LONG (1501-3000) +	VIS VIS/TIS +

FIRE DELIVERY METHOD: EMERGENCY PRECISION ENGAGEMENT CATEGORY: 27

OWN TANK							
WEAPON	TANK MOTION	TURRET	CONTROLS				
MG + COAX + .50 CAL +	M s <u>+</u>	NONSTAB +	POWER _+				
FUNCTION MALFUNCTION	<u>GPS</u> <u>TIS</u> + +	LEF LEAD C	CANI				

	TA	ARGET	
TCT MOTION	TGT NUMBER	RANGE	VIS
M + (.50 CAL)	SINGLE + SIMUL + MULT +	MED (500-1500) + LONG (1501-3000) +	VIS + VIS/TIS +

	OWN TANK						
WEAPON	TANK MOT	ION	TURRET	<u>0</u>	ONTROLS		
MG + COAX + .50 CAL +	M S _+		STAB _		OWER <u>+</u>		
	GPS <u>TI</u>	S LRF	LEAD	CROSSWIND	CANT		
FUNCTION MALFUNCTION	+	+	+	+	-+-		

	TAF	RGET	
TGT MOTION	TGT NUMBER	RANGE	<u>vis</u>
M + s + (.50 (AL)	SINGLE + SIMUL + MULT +	MED (500-1500) + LONG (1501-3000) +	VIS

OWN TANK						
WEAPON	TAN	K MOTION		TURRET	<u>c</u> c	ONTROLS
MG + COAX + .50 CAL +	M S			STAB		OWER +
	<u>GPS</u>	TIS	LRF	LEAD	CROSSWIND	CANT
FUNCTION MALFUNCTION		+	+	+	+	_

TARGET								
TCT MOTION	TGT NUMBER	RANGE	, <u>VIS</u>					
M + S + (.50 CAL)	SINGLE + SIMUL + MULT +	MED (500-1500) + LONG (1501-3000) +	VIS ± VIS/TIS					

FIRE DELIVERY METHOD: EMERGENCY BATTLESIGHT ENGAGEMENT CATEGORY: 30

OWN TANK								
WEAPON	TANK MOTION	TURRET	CONTROLS					
MG COAX	M S+	STAB NONSTAB	POWER + MANUAL					
	GPS TIS	LRF LEAD	CROSSWIND CANT					
FUNCTION MALFUNCTION	+ +	+ +	+ +					

TARGET								
TGT MOTION	TGT NUMBER	RANGE	<u>vis</u>					
M _ + (.50 CAL)	SINGLE + SIMUL + MULT +	MED (500-1500) + LONG (1501-3000) +	VIS + VIS/TIS +					

FIRE DELIVERY METHOD: EMERGENCY BATTLESIGHT ENGAGEMENT CATEGORY: 31

OWN TANK								
WEAPON	TANK MOT	ON	TURRET	co	NTROLS			
MG + COAX + .50 CAL +	м s <u>+</u>		STAB		wer <u>+</u> Nual			
	GPS TIS	LRF	LEAD	CROSSWIND	CANT			
FUNCTION MALFUNCTION	+	+	+	_	_ + _			

TARGET								
TGT MOTION	TGT NUMBER	RANGE	VIS					
M + S + (.50 CAL)	SINGLE + SIMUL + MULT +	MED (500-1500) + LONG (1501-3000) +	VIS					

APPENDIX B
XM1 GUNNERY OBJECTIVES

KEY TO ABBREVIATIONS

MG Main Gun

COAX Coaxial Machinegun

.50 CAL. .50 Caliber Machinegun

M Moving

S Stationary

STAB Stabilization

NONSTAB Nonstabilization

GPS Gunner's Primary Sight

TIS Thermal Imaging System

LRF Laser Rangefinder

LEAD Lead Angle Sensor

STMUL Simultaneous

MULT Multiple
MED Medium

VIS Visible without artifical light (during daylight)

VIS/TIS Visible with thermal imaging system

ENGAGEMENT CATEGORY: 1

OBJECTIVE: 1A

		OWN TANK					
<u>WEAPON</u> MG <u>+</u>	TANK NOTION M +	TURRET STAB	POW				
COAX	s	NONSTAB	MAN	UAL			
1	GPS TIS	LRF LEAD	CROSSWIND	CANT			
FUNCTION MALFUNCTION	<u>+</u> <u>+</u>	<u>+</u> +	<u>+</u> 	+			
		TARGET					
TGT MOTION	TGT NUMBER	RAN	<u>ge</u>	VIS			
M + S	SINGLE + SIMUL			IS +			
		CRITERIA					
TIME (Seconds)							
Main Gun Engageme	ents			TC GNR			
From start of fir From Gunner "Ider From Gunner "Not From TC "Fire" to From TC completion	sure to start of in the command to finish atify" to select and Identified" to select of first round fired on of lase to first impact to second	sh of lay for dire mmo, lay, track, a lect ammo, lay, to d: t round fired:	ection: and lase: rack, and lase	: or			
.50 Caliber Engag	gements						
_	sure to target supp	pression:					
Coax Engagements From target exposure to start of fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select coax, lay, track: From finish of tracking to target suppression:							
AIMING ERROR			First Pound	Sociand Pound			
Elevation error in Deflection error	from center of mag from center of mag from base of targe from base of targe	s (Precision): et (Battlesight):	First Round mils mils mils mils mils	Second Round mils mils mils mils			
Live Fire-Main Gu	ın, Coax, .50 Calil	ber	Rounds				
Main Gun Coax .50 Caliber		B_ 2					

ENGAGEMENT CATEGORY: 3

	OBJECTIVE: 1B					
			OWN TAN	ж		
WEAPON	TANK	MOTION		TURRET	COL	NTROLS
MG ÷ COAX ÷ .SO CAL	M S	+		STAB + NONSTAB	~~	VER +
	GPS	TIS	LRF	LEAD	CROSSWIND	CANT
FUNCTION MALFUNCTION	+	+	+	+	+	
**************************************			TARGET			
TGT MOTION		TGT NUMBER		RANGI	<u>E</u>	VIS
$\frac{M}{S} + \frac{MG}{\pm (COAX)}$		SINGLE SIMUL MULT	MED (500-1500) + VIS + LONG (1501-3000) + VIS/TIS			

CRITERIA

TIME (Seconds)			
Main Gun Engagements		TC	GNR
From target exposure to start of initial fire command: From start of fire command to finish of lay for direct From Gunner "Identify" to select ammo, lay, track, and From Gunner "Not Identified" to select ammo, lay, track From TC "Fire" to first round fired: From TC completion of lase to first round fired: From first round impact to second round fired (if firs miss):	rion: H lase: ck, and lase:		
.50 Caliber Engagements			
From target exposure to target suppression:			
Coax Engagements			
From target exposure to start of fire command: From start of fire command to finish of lay for direct From Gunner "Identify" to select coax, lay, track: From finish of tracking to target suppression:	ion:		
AIMING ERROR			
Dry Fire-Main Gun	irst Round	Second	Round
Deflection error from center of mass (Precision): Elevation error from center of mass (Precision): Deflection error from base of target (Battlesight): Elevation error from base of target (Battlesight):	mils mils mils mils mils		mils mils mils mils
Live Fire-Main Gun, Coax, .50 Caliber	lounds		
Main Gun Coax .50 Caliber B-4			

ENGAGEMENT CATEGORY: 1

OBJECTIVE: 1C

1			OWN I	ANK				
WEAPON	TANK MO	OTION		TURRET		CONTROL	S	
MG + COAX - + .50 CAL +	M +	-		STAB +	_	POWER MANUAL	+	
: •	<u>GPS</u>	TIS	LRF	LEAD	CROSSWI	ND	CANT	
FUNCTION MALFUNCTION	+		+	+			±	
			TARG	ET				1
TGT MOTION	TG	r number		RANGI	<u> </u>	VIS		ļ
m <u>+</u> (.50 s +	CAL) SIN	IGLE IUL _+ LT		MED (500-150 LONG (1501-3		VIS VIS/T	IS ±	
			CRITE	RIA				
TIME (Seconds)								
Main Gun Engagem	ents			 		T	С	GNR
From target expo From start of fi From Junner "Ide From Gunner "Not From TC "Fire" t From TC completi From first round miss):	re command ntify" to so Identified of first rot on of lase	to finis select and in to sel and fired to first	sh of immo, lact and it round	lay for dired ay, track, ar mmo, lay, tra d fired:	ction: nd lase: ack, and l	ase:		
.50 Caliber Enga	gements							
From target expo	sure to tar	get supp	pressi	on:				
Coax Engagements								
From target expo From start of fi From Gunner "Ide From finish of t	re command	to finis	sh of i	lay for direday, track:	ction:		<u> </u>	
AIMING ERROR			····					
Dry Fire-Main Gu	n				First Rou	ind Se	cond R	ound
Deflection error Elevation error Deflection error Elevation error	from center from base	of mass	et (Ba	cision): ttlesight):	mil mil mil	.s .s	m	ils ils ils ils
Live Fire-Main G	un, Coax,	50 Calil	per		Rounds			
Main Gun Coax .50 Caliber								

ENGAGEMENT CATEGORY: 2

OBJECTIVE: 2A

:			OWN TAN	<u></u>			
; WEAPON	TANK	MOTION	Our IM	TURRET		CONTROLS	5
MG + COAX .50 CAL		+		STAB + NONSTAB	-	POWER MANUAL	+
1	GPS	TIS	LRF	LEAD	CROSSWI	ND	CANT
FUNCTION MALFUNCTION	<u>+</u>	_±_ 	<u>+</u>	<u>-</u>	<u>+</u> _		±
			TARGET			· · · · · ·	
TGT MOTION		TGT NUMBE	<u>R</u>	RANG	<u>E</u>	<u>vis</u>	
M <u>+</u> s <u></u>		SINGLE + SIMUL MULT	_ M _ L	ED (500-15 ONG (1501-	00) 3000) <u>+</u>	VIS VIS/T	IS <u>+</u>
			CRITERI	A			
TIME (Seconds)							
Main Gun Engagem	ents		······································			T	C GNR
From target expo From start of fi From Gunner "Ide From Gunner "Not From TC "Fire" t From TC completi From first round miss):	re comma ntify" t Identif o first on of la	nd to find o select ied" to s round fire se to fire	ish of la ammo, lay elect amm ed: st round	y for dire , track, a o, lay, tr fired:	ction: nd lase: ack, and l		or
.50 Caliber Enga	gements						
From target expo	sure to	target su	ppression	:			
Coax Engagements	_						
From target expo From start of ti From Gunner "Ide From finish of t	re comma ntify" t	nd to iin o select	ish of la coax, lay	y for dire , track:	ction:		
AIMING ERROR							
Dry Fire-Main Gu		_	,_		First Ro		cond Round
Deflection error Elevation error Deflection error Elevation error	from cen	iter of ma ise of tar	ss (Preci get (Batt	sion): lesight):	mi mi mi mi	ls Is	mils mils mils mils mils
Live Fire-Main G	un, Coax	.50 Cal	<u>iber</u>		Rounds		
Main Gun Coax .50 Caliber							

B-6

ENGAGEMENT CATEGORY: 2

OBJECTIVE: 2B

·							
			OWN TAI	NK			
WEAPON	TANK N	OTION		TURRET	<u>(</u>	CONTROLS	
MG +	М	<u>+</u>		STAB +	-	OWER +	
COAX .50 CAL	s			NONSTAB	_	IANUAL	
							_
	GPS	TIS	LRF	LEAD	CROSSWI		
FUNCTION MALFUNCTION	+	<u>+</u>	_+_	_+_			
THE ONCITOR	<u></u>						
		· · · · · · · · · · · · · · · · · · ·	TARGET				
TGT MOTION	ጥረ	T NUMBER		rangi	7	VIS	
		INGLE	•	ÆD (500-150	_	VIS	
M + S		MUL		LONG (1501-3		VIS/TIS _	+
	M	л . т <u>+</u> .					
			CRITERI	[A			
							
TIME (Seconds)			· · · · · · · · · · · · · · · · · · ·				GNR
Main Gun Engageme	······································			· •	• •	TC	GM
From target expose From start of fire							
From Gunner "Iden							
From Gunner "Not From TC "Fire" to				no, lay, tra	ack, and le	sse:	
From TC completion	on of lase	to firs	t round				
From first round miss):	impact to	second	round II	irea (11 11)	rst round	C	r
.50 Caliber Engag	gements						
From target expos		rget sup	pression	n:			
Coax Engagements	_						
From Larget expos							
From start of it					ction:		
From Gunner "Ide: From finish of t							
AIMING ERROR							
Dry Fire-Main Gu	<u>n</u>	-			First Rou	nd Second	Round
Deflection error					mils		mils
Elevation error					mils mils		mils mils
Deflection error Elevation error					mils		mils
Live Fire-Main G	un, Coax,	.50 Cali	ber		Rounds		
Main Gun							
Coax							
.50 Caliber							

ENGAGEMENT CATEGORY: 2

OBJECTIVE: 2C

		OWN TANK						
MG COAX + .50 CAL +	TANK MOTION M + S	TURRET STAB + NONSTAB	CONT POWE MANU					
FUNCTION MALFUNCTION	<u>GPS</u> <u>TIS</u> <u>+</u> <u>-</u>	<u>LRF</u> <u>LEAD</u> + +	CROSSWIND +	<u>+</u>				
	· · · · · · · · · · · · · · · · · · ·	TARGET	· · · · · · · · · · · · · · · · · · ·					
TGT MOTION M S +	TGT NUMBER SINGLE SIMUL + MULT	MED (500-15	500) <u>+</u> VI	<u>VIS</u> IS IS/TIS _+				
		CRITERIA						
TIME (Seconds)								
Main Gun Engageme	ents			TC GNR				
From start of fir From Gunner "Iden From Gunner "Not From TC "Fire" to From TC completion From first round miss):	From target exposure to start of initial fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select ammo, lay, track, and lase: From Gunner "Not Identified" to select ammo, lay, track, and lase: From TC "Fire" to first round fired: From TC completion of lase to first round fired: From first round impact to second round fired (if first round							
.50 Caliber Engag								
	sure to target sup	pression:						
Coax Engagements From target exposure to start of fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select coax, lay, track: From finish of tracking to target suppression: AIMING ERROR								
Dry Fire-Main Gur	1		First Round	Second Round				
Deflection error Elevation error in Deflection error	from center of ma from center of mas from base of targe from base of targe	s (Precision): et (Battlesight):	mils mils mils mils mils	mils mils mils mils mils				
Live Fire-Main Gu	ın, Coax, .50 Cali	ber	Rounds					
Main Gun Coax .50 Caliber								

ENGAGEMENT CATEGORY: 3
OBJECTIVE: 3A

		0,500	01172. 31.	
		OWN TANK		
WEAPON MG + COAX .50 CAL	TANK MOTION M _+ S	TURRET STAB NONSTAB	±_ POW	TROLS TER + TUAL
FUNCTION MALFUNCTION	<u>GPS</u> <u>TIS</u>	<u>LRF</u> <u>LEAD</u> + +	CROSSWIND _+_	CANT +
		TARGET	 	
TGT MOTION M + S	TGT NUMBER SINGLE SIMUL MULT +	<u>RAN</u> MED (500-1	500) <u>+</u> V	VIS IS IS/TIS
		CRITERIA		
TIME (Seconds)				
Main Gun Engagem	ents			TC GNR
From start of fir From Gunner "Identification Gunner" Not From TC "Fire" to From TC completion	sure to start of in re command to finis atify" to select am Identified" to sel o first round fired on of lase to first impact to second r	h of lay for diramo, lay, track, a ect ammo, lay, to the count fired:	ection: and lase: rack, and lase	: or
.50 Caliber Enga	gements			
From target expos	sure to target supp	ression:		
Coax Engagements	_			
From Start of (i) From Gunner "Iden	sure to start of fi re command to finis atify" to select co racking to target s	h of lay for direax, lay, track:	ection:	
AIMING ERROR				
Elevation error : Deflection error	from center of mas from center of mass from base of targe from base of target	(Precision): t (Battlesight):	First Round mils mils mils mils	Second Round mils mils mils mils mils
Live Fire-Main G	un, Coax, .50 Calib	er	Rounds	
Main Gun Coax .50 Caliber				

B-9

ENGAGEMENT CATEGORY: 3

OBJECTIVE: 3B

		OWN TANK						
WEAPON MG COAX + .50 CAL +	TANK MOTION M + S	TURRET STAB ± NONSTAB	POW	TROLS ER + UAL				
FUNCTION MALFUNCTION	<u>GPS</u> <u>TIS</u>	<u>LRF</u> <u>LEAD</u>	CROSSWIND +	CANT _+				
		TARGET	· · · · · · · · · · · · · · · · · · ·					
TGT MOTION M S	TGT NUMBER SINGLE SIMUL + MULT	RANG MED (500-15 LONG (1501-		VIS IS IS/TIS				
CRITERIA								
Main Gun Engagements From target exposure to start of initial fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select ammo, lay, track, and lase: From TC "Fire" to first round fired: From TC completion of lase to first round fired: From first round impact to second round fired (if first round miss): .50 Caliber Engagements From target exposure to start of fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select coax, lay, track: From finish of tracking to target suppression:								
AIMING ERROR Dry Fire-Main Gun			First Round	Second Round				
Deflection error Elevation error f	from center of mass rom center of mass from base of targe rom base of target	(Precision): et (Battlesight):	mils mils mils mils mils	mils mils mils mils				
Live Fire-Main Gu Main Gun Coax .50 Caliber	n, Coax, .50 Calib	<u>per</u>	Rounds					

8-10

ENGAGEMENT CATEGORY: 3

OBJECTIVE: 3C

			O/D: 5:	377				
WEAPON	ም ል እ ጥ	(አለምተለካ	OWN TA		,	CONTROL		
MG +		MOTION		TURRET STAB +	-	CONTROLS POWER +		
COAX	S	<u>±</u>		NONSTAB	•	MANUAL	-	
.50 CAL								
	<u>GPS</u>	TIS	LRF	<u>LEAD</u>	CROSSWII	ND C	ANT	
FUNCTION MALFUNCTION			_+	+	<u>+</u>	_	<u>+</u>	
PALFONCTION		<u></u>						
			ma not	em				
TOT MOTION		TOT MINORD	TARGE			WE		
TGT MOTION		TGT NUMBER SINGLE +		<u>RANGE</u> MED (500-150	•	<u>VIS</u> VIS	_	
s <u>+</u>		SIMUL		LONG (1501-3		VIS/TIS	<u></u>	
CRITERIA								
TIME (Seconds)								
Main Gun Engageme	nts					TC	GNR	
From target expos								
From start of fir From Gunner "Iden	tify" t	o select am	mo, la	y, track, an	d lase:			
From Gunner "Not From TC "Fire" to				mo, lay, tra	ck, and la	ase:	• • •	
From TC completion	n of la	se to first	round			*******		
From first round miss):	impact	to second r	ound f	ired (if fir	st round	•	or	
.50 Caliber Engag	ements							
From target expos	ure to	target supp	ressio	n:				
Coax Engagements								
From target expon					. •			
From start of fir From Gunner "Iden					tion:			
From finish of tr	acking	to target s	uppres	sion:				
AIMING ERROR								
Dry Fire-Main Gun		_	_		First Rour		nd Round	
Deflection error Elevation error f					mile mile		_ mils mils	
Deflection error Elevation error f					mils		_ mils _ mils	
Live Fire-Main Gu			•	•	Rounds	•	mr12	
Main Gun		.,		,				
Coax								

ENGAGEMENT CATEGORY: 4

OBJECTIVE: 4A

		OWN TANK						
WEAPON	TANK MOTION	TURRET		TROLS				
MG + COAX - .50 CAL	s <u>+</u>	STAB NONSTAB		ER + UAL				
FUNCTION MALFUNCTION	<u>CPS</u> <u>TIS</u> <u>+</u> <u>+</u>	<u> LRF </u>	CROSSWIND +	<u>CANT</u>				
		TARGET	·					
TGT MOTION	TGT NUMBER	RANG	<u>GE</u>	<u>vis</u>				
M + S	SINGLE SIMUL MULT +			IS <u>+</u> IS/TIS <u>-</u>				
CRITERIA								
TIME (Seconds)								
Main Gun Engageme	ents			TC GNR				
From target exposure to start of initial fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select ammo, lay, track, and lase: From Gunner "Not Identified" to select ammo, lay, track, and lase: From TC "Fire" to first round fired: From TC completion of lase to first round fired: From first round impact to second round fired (if first round miss):								
.50 Caliber Engag	ements							
From target expos	ure to target sup	pression:						
Coax Engagements	-							
From Start of iii From Gunner "Iden	re command to fini etify" to select c acking to target	sh of lay for dire oax, lay, track:	ection:					
AIMING ERROR								
Dry Fire-Main Gun			First Round	Second Round				
Elevation error f Deflection error	from center of marrom center of mas from base of targerom base of targe	s (Precision): et (Battlesight):	mils mils mils mils mils	mils mils mils mils mils				
Live Fire-Main Gu	n, Coax, .50 Cali	ber	Rounds					
Main Gun Coax .50 Caliber								

ENGAGEMENT CATEGORY: 4
OBJECTIVE: 4B

		OWN TANK					
WEAPON MG COAX + .50 CAL +	TANK MOTION M + S	TURRET STAB NONSTAB		TROLS ER _±_			
FUNCTION MALFUNCTION	<u>GPS</u> <u>TIS</u> <u>+</u> <u>+</u>	<u> </u>	CROSSWIND +	<u>+</u>			
		TARGET					
TGT MOTION M + S	TGT NUMBER SINGLE SIMUL + MULT	MED (500-		VIS IS + IS/TIS —			
CRITERIA							
TIME (Seconds)	 						
Main Gun Engageme	nts			TC GNR			
From target exposure to start of initial fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select ammo, lay, track, and lase: From Gunner "Not Identified" to select ammo, lay, track, and lase: From TC "Fire" to first round fired: From TC completion of lase to first round fired: From first round impact to second round fired (if first round miss):							
.50 Caliber Engag	ements						
From target expos		pression:					
Coax Engagements	<u>-</u>						
From start of fir From Gunner "Iden	From target exponure to start of fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select coax, lay, track: From finish of tracking to target suppression:						
AIMING ERROR							
Dry Fire-Main Gun	_		First Round	Second Round			
Deflection error Elevation error f Deflection error Elevation error f	rom center of mass from base of targe	s (Precision): et (Battlesight):	mils mils mils mils	mils mils mils mils mils			
Live Fire-Main Gu	n, Coax, .50 Calil	per	Rounds				
Main Gun Coax							
.50 Caliber	1	3–13					

ENGAGEMENT CATEGORY: 4

OBJECTIVE: 4C

		OWN TANK						
WEAPON	TANK MOTION	TURRET	CON	TROLS				
MG +	M +	STAB +	POW					
COAX	s	NONSTAB		UAL				
-50 CAL								
	GPS TIS	LRF LEAD	CROSSWIND	CANT				
FUNCTION	+	+ +	+	+				
MALFUNCTION	+							
		TARGET						
TGT MOTION	TGT NUMBER		2 tr	VIS				
M	SINGLE +			<u> </u>				
s <u>+</u>	SIMUL MULT		-3000) + V					
CRITERIA								
TIME (Seconds)								
Main Gun Engageme	ents			TC GNR				
From start of fir From Gunner "Iden From Gunner "Not From TC "Fire" to From TC completion	re command to finintify" to select a Identified" to see ofirst round fire on of lase to firs		ection: and lase: ack, and lase	: or				
.50 Caliber Engag	gements							
From target expos	sure to target sup	pression:						
Coax Engagements								
From start of fir From Gunner "Iden	sure to start of f re command to fini atify" to select c acking to target	sh of lay for dire	ection:					
Dry Fire-Main Gur	1	······································	First Round	Second Round				
Deflection error Elevation error for Deflection error	from center of ma from center of mas from base of targ from base of targe	s (Precision): et (Battlesight):	mils mils mils mils	mils mils mils mils mils				
Live Fire-Main Gu	ın, Coax, .50 Cali	ber	Rounds					
Main Gun Coax								
.50 Caliber		B-14						

ENGAGEMENT CATEGORY: 5

OBJECTIVE: 5A

		OWN TANK					
WEAPON	TANK MOTION	TURRET	CO	NTROLS			
MG + COAX	M + S	STAB NONSTAB	+ POI	VER +			
	GPS TIS	LRF LEAD	CROSSWIND	CANT			
FUNCTION MALFUNCTION	+ +	<u>+</u> <u>+</u>	+	<u>+</u> 			
		TARGET					
TCT MOTION	TGT NUMBER	RAN	<u>ige</u>	VIS			
M + S	SINGLE + SIMUL MULT			/IS /IS/TIS			
		CRITERIA					
TIME (Seconds)							
Main Gun Engageme	ents			TC GNR			
From target exposure to start of initial fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select ammo, lay, track, and lase: From Gunner "Not Identified" to select ammo, lay, track, and lase: From TC "Fire" to first round fired: From TC completion of lase to first round fired: From first round impact to second round fired (if first round miss):							
.50 Caliber Engag		_					
_	sure to target sup	pression:					
From start of fir From Gunner "Ider From finish of tr	enre to start of fi re command to fini- ntify" to select contacting to target :	sh of lay for dir oax, lay, track:	ection:				
AIMING ERROR							
Elevation error in Deflection error	from center of mag from center of mass from base of targe from base of targe	s (Precision): et (Battlesight):	First Round mils mils mils mils mils	Second Round mils mils mils mils mils			
Live Fire-Main Gu	n, Coax, .50 Cali	ber	Rounds				
Main Gun							
Coax .50 Caliber	I	3–15					

ENGAGEMENT CATEGORY: 5

OBJECTIVE: 5B

			OWN T	ANK			
WEAPON	TANK	MOTION		TURRET		CONTROLS	<u>.</u>
MG + COAX - .50 CAL +	M S	+		STAB + NONSTAB		POWER MANUAL	+
FUNCTION	GPS +	TIS +	LRF	LEAD +	CROSSWI	IND	CANT +
MALFUNCTION							
			TARG	ET			
TGT MOTION		TGT NUMBER		RANGE	!	VIS	
M + (MS) S + (.50	CAL)	SINGLE SIMUL MULT		MED (500-150 LONG (1501-3		VIS VIS/TI	s <u>+</u>
			CRITE	RIA			
TIME (Seconds)							
Main Gun Engage	ments					TO	GNR GNR
From target exp From start of f From Cunner "Id From Gunner "No	ire comma entify" t t Identif	nd to finis o select am ied" to sel	h of 1 mo, 1 ect a	lay for direc ay, track, an	tion: d lase:	ase:	
From TC "Fire" From TC complet From first roun	ion of la	se to first	round		st round	-	
miss):	a impact	to occond r	ound .	(21 222	De round		_ or
.50 Caliber Eng	agements	-					
From target exp	osure to	target supp	ressi	on:			
Coax Engagement	<u>s</u>						
From target exp From start of f From Gunner "Id From finish of	ire comma entify" t	nd to finis o select co	h of lax, la	lay for direc ay, track:	tion:		
AIMING ERROR							
Dry Fire-Main G	un				First Rou	ind Sec	ond Round
Deflection error Elevation error Deflection error Elevation error	from cen r from ba	ter of mass se of targe	(Pre	cision): ttlesight):	mil mil mil	ls Ls	mils mils mils mils mils
Live Fire-Main	Gun, Coax	, .50 Calib	er		Rounds		

Main Gun Coax

.50 Caliber

ENGAGEMENT CATEGORY: 5

OBJECTIVE: 5C

		OWN TANK						
WEAPON	TANK MOTION	TURRET	CON	TROLS				
MG + + + + + + + + + + + + + + + + + + +	M + S	STAB NONSTAB		ER + UAL				
FUNCTION MALFUNCTION	<u>GPS</u> <u>TIS</u> <u>+</u> <u>+</u>	<u>LRF</u> <u>LEAD</u> + +	CROSSWIND +	<u>CANT</u> _ <u>+</u>				
		TARGET						
TGT MOTION	TGT NUMBER	RAI	IGE_	<u>vis</u>				
ж <u>+</u> s	SINGLE SIMUL MULT +		· ———	IS ± IS/TIS =				
CRITERIA								
TIME (Seconds)								
Main Gun Engageme	nts			TC GNR				
From start of fir From Gunner "Iden From Gunner "Not From TC "Fire" to From TC completio From first round miss):	From target exposure to start of initial fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select ammo, lay, track, and lase: From Gunner "Not Identified" to select ammo, lay, track, and lase: From TC "Fire" to first round fired: From TC completion of lase to first round fired: From first round impact to second round fired (if first round miss):							
.50 Caliber Engag								
	ure to target sup	pression:						
From target expos From start of fir From Gunner "Iden	Coax Engagements From target exposure to start of fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select coax, lay, track: From finish of tracking to target suppression:							
AIMING ERROR								
Dry Fire-Main Gun	<u></u>		First Round	Second Round				
Elevation error f Deflection error	from center of mar rom center of mas from base of targerom base of targe	s (Precision): et (Battlesight):	mils mils mils mils mils	mils mils mils mils mils				
Live Fire-Main Gu	n, Coax, .50 Cali	<u>ber</u>	Rounds					
Main Gun Coax .50 Caliber								

3-17

ENGAGEMENT CATEGORY: 6

OBJECTIVE: 6A

		OWN TANK						
WEAPON	TANK MOTION	TURRET	CON	TROLS				
MG + COAX + .50 CAL	M + S	STAB + NONSTAB		TER + TUAL				
FUNCTION MALFUNCTION	<u>GPS</u> <u>TIS</u> <u>+</u> <u>+</u>	<u>LRF</u> <u>LEAD</u> ++	CROSSWIND +	<u>CANT</u> + —				
		TARGET	······································					
TGT MOTION	TGT NUMBER	RANC	<u>SE</u>	VIS				
м <u>+</u> s	SINGLE SIMUL MULT +	MED (500-1501-	600) <u>+</u> V -3000) <u>+</u> V	TS TS/TIS +				
CRITERIA								
TIME (Seconds)								
Main Gun Engageme	ents			TC GNR				
From target exposure to start of initial fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select ammo, lay, track, and lase: From Gunner "Not Identified" to select ammo, lay, track, and lase: From TC "Fire" to first round fired: From TC completion of lase to first round fired: From first round impact to second round fired (if first round miss):								
.50 Caliber Engag		maacian.						
•	ure to target supp	Jiession:		**************************************				
Coax Engagements From target exposure to start of fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select coax, lay, track: From finish of tracking to target suppression:								
AIMING ERROR								
Dry Fire-Main Gun			First Round	Second Round				
Elevation error f Deflection error	from center of mass rom center of mass from base of targe rom base of target	(Precision): et (Battlesight):	mils mils mils mils mils	mils mils mils mils mils				
Live Fire-Main Gu	n, Coax, .50 Calib	er	Rounds					
Main Gun Coax .50 Caliber	_	•••	******					

ENGAGEMENT CATEGORY: 6
OBJECTIVE: 6B

i		OWN TANK						
WEAPON	TANK MOTION	<u>:</u>	TURRET	9	CONTROLS			
MG + COAX .50 CAL	s	-	TAB + ONSTAB		POWER + MANUAL			
	GPS TIS	LRF	LEAD	CROSSWII	ND CANT	-		
FUNCTION MALFUNCTION	+	+	+	+		-		
1		TARGET						
TOT MOTION	TGT NUMBER	<u> </u>	RANGE		VIS			
M + S	SINGLE + SIMUL MULT		(500-1500 NG (1501-30		VIS VIS/TIS +			
CRITERIA								
TIME (Seconds)								
Main Gun Engageme	ents				TC	GNR		
From Start of fil From Gunner "lder From Gunner "Not From TC "Fire" to From TC completion	sure to start of in re command to fini atify" to select a Identified" to se officet round fire on of lase to firs impact to second	sh of lay ammo, lay, elect ammo, ed: at round fi	for direct track, and lay, trac red:	tion: 1 lase: ck, and la	ase: or			
.50 Caliber Engag	gements							
	sure to target sup	pression:						
Coax Engagements								
From Start of fir From Gunner "Iden	From target exposure to start of fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select coax, lay, track: From finish of tracking to target suppression:							
AIMING ERROR								
Dry Fire-Main Gu			_	first Rour				
Elevation error in Deflection error	from center of ma from center of mas from base of targe from base of targe	s (Precisi et (Battle	on): sight):	mils mils mils	<u> </u>	mils mils mils mils		
Live Fire-Main Gu	ın, Coax, .50 Cali	ber	Į	Rounds				
Main Gun Coax .50 Caliber	p	3-19						

FIRE DELIVERY METHOD: NORMAL PRECISION ENGAGEMENT CATEGORY: 6

		OBJEC	CTIVE: 6C	
		OWN TANK		
WEAPON	TANK MOTION	TURRET	CON	TROLS
MG+ COAX .50 CAL +	M <u>+</u>	STAB	POW MAN	ER <u>+</u> UAL
FUNCTION MALFUNCTION	<u>GPS</u> <u>TIS</u> + +	<u>LRF</u> <u>LEAD</u> + +	CROSSWIND +	<u>CANT</u> _+
		TARGET	· · · · · · · · · · · · · · · · · · ·	
TGT MOTION M + (MG) S + (.50	TGT NUMBER SINGLE SIMUL + MULT	MED (500-15		VIS IS IS/TIS +
		CRITERIA		
TIME (Seconds)				
Main Gun Engager	nents			TC GNR
From start of fi From Gunner "Ide From Gunner "Not From TC "Fire" t From TC complete	osure to start of it ire command to fini- entify" to select at I Identified" to se to first round fire- ion of lase to firs I impact to second	sh of lay for dire mmo, lay, track, a lect ammo, lay, tr d: t round fired:	ection: nd lase: ack, and lase	: or
.50 Caliber Enga	agements			
From target expo	sure to target supp	pression:		
From Start of fi From Gunner "Ide	occure to start of fi tre command to finisentify" to select co tracking to target s	sh of lay for dire oax, lay, track:	ction:	
*			First Pound	Sociand Pound
Elevation error Deflection error	f from center of mass from center of mass from base of targe from base of targe	s (Precision): et (Battlesight):	mils mils mils mils mils mils	Second Round mils mils mils mils mils
Live Fire-Main (Gun, Coax, .50 Calil	ber	Rounds	
Main Gun Coax				

FIRE DELIVERY METHOD: NORMAL PRECISION ENGAGEMENT CATEGORY: 7

OBJECTIVE: 7A

		OWN TANK			
WEAPON	TANK MOTION	TURRET	CON	TROLS	
MG + COAX .50 CAL	M <u>+</u> S	STAB -	POW.	ER <u>+</u> UAL	
	GPS TIS	<u>LRF</u> <u>LEAD</u>	CROSSWIND	CANT	
FUNCTION MALFUNCTION	<u>+</u> <u>+</u>	<u>+</u> <u>+</u>		_ _	
		TARGET		·	
TGT MOTION	TGT NUMBER	RANG	E	VIS	
M +	SINGLE + SIMUL MULT	MED (500-15 LONG (1501-		IS + IS/TIS —	
		CRITERIA			
TIME (Seconds)			· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	
Main Gun Engagem	ents_			TC	GNR
From start of fit From Gunner "Iden From Gunner "Not From TC "Fire" t From TC completion	re command to fini ntify" to select a Identified" to se o first round fire on of lase to firs		ction: nd lase: ack, and lase	or	
.50 Caliber Enga					
	sure to target sup	pression:			
From start of fi From Gunner "Ide From finish of t	- sure to start of f	sh of lay for dire oax, lay, track:	ction:	-	
AIMING ERROR					
Dry Fire-Main Gu		nn (Dennadadam)	First Round	Second Ro	
Elevation error Deflection error	from center of ma from center of mas from base of targ from base of targe	s (Precision): et (Battlesight):	mils mils mils mils mils	mi	ils ils ils ils
Live Fire-Main G	un, Coax, .50 Cali	ber	Rounds		
Main Gun Coax .50 Caliber	•	2_21			

ENGAGEMENT CATEGORY: 7

OBJECTIVE: 7B

!		OWN TANK		
WEAPON	TANK MOTION	TURRET	CON	TROLS
MG + COAX - .50 CAL +	м <u>+</u> s <u></u>	STAB NONSTAB		TUAL
FUNCTION MALFUNCTION	<u>GPS</u> <u>TIS</u>	<u>LRF</u> <u>LEAD</u> + + +	CROSSWIND +	<u>CANT</u>
		TARGET		
TGT MOTION	TGT NUMBE	R RAI	NGE	VIS
M + (MG) S + (.50 C	SINGLE	MED (500-1 LONG (150)	1500) <u>+</u> V 1-3000) V	IS <u>+</u> IS/TIS <u>—</u>
		CRITERIA		
TIME (Seconds)				
Main Gun Engagem	ents_			TC GNR
From start of fi From Gunner "Ide From Gunner "Not From TC "Fire" t From TC completi	sure to start of a re command to find ntify" to select a Identified" to se o first round fire on of lase to firs impact to second	ish of lay for din ammo, lay, track, elect ammo, lay, f ed: et round fired:	rection: and lase: crack, and lase	: or
.50 Caliber Enga	gements			
From target expo	sure to target sup	opression:		
Coax Engagements	- -			
From start of fi From Gunner "Ide	sure to start of increase command to find ntify" to select or racking to target	ish of lay for din coax, lay, track:	rection:	
AIMING ERROR		·		
Dry Fire-Main Gu	n_		First Round	Second Round
Elevation error Deflection error	from center of mag from center of mag from base of targ from base of targe	ss (Precision): get (Battlesight):	mils mils mils mils	mils mils mils mils
Live Fire-Main G	un, Coax, .50 Cali	lber	Rounds	
Main Gun Coax .50 Caliber		B 22		

ENGAGEMENT CATEGORY: 7

OBJECTIVE: 7C

		OWN TANK		
WEAPON	TANK MOTION	TURRET	CON	TROLS
MG + COAX + .50 CAL	M + S	STAB		ER <u>+</u> UAL
	CPS TIS	LRF LEAD	CROSSWIND	CANT
FUNCTION MALFUNCTION	+ +	<u>+</u> <u>+</u>	+	+
		TARGET		
TGT MOTION M + S	TGT NUMBER SINGLE SIMUL MULT +	R RAN MED (500-1 LONG (1501	 500) <u>+</u> V	VIS IS <u>+</u> IS/TIS <u>—</u>
		CRITERIA		
TIME (Seconds)				
Main Gun Engageme	ents			TC GNR
From start of fir From Gunner "Ider From Gunner "Not From TC "Fire" to From TC completion	re command to finintify" to select a Identified" to see first round fire on of lase to first		ection: and lase: rack, and lase	: or
.50 Caliber Engag	gements			
From target expos	sure to target sup	ppression:		-
Coax Engagements	-			
From start of fir From Gunner "Iden	sure to start of interest of the command to finite intify" to select of the cacking to target	ish of lay for direcoax, lay, track:	ection:	
AIMING ERROR				
Dry Fire-Main Gur	1		First Round	Second Round
Elevation error of Deflection error	from center of mag from center of mag from base of targ from base of targe	ss (Precision): get (Battlesight):	mils mils mils mils mils	mils mils mils mils
Live Fire-Main Gu	un, Coax, .50 Cal	lber	Rounds	
Main Gun Coax .50 Caliber		n 22		

ENGAGEMENT CATEGORY: 8

OBJECTIVE: 8A

		OWN TANK	\ - *-\-\- \			
WEAPON	TANK MOTION	TURRET	CON	TROLS		
MG + COAX + .50 CAL	M + S	STAB NONSTAB	+ POW MAN	UER +		
FUNCTION MALFUNCTION	<u>GPS</u> <u>TIS</u> <u>+</u> <u>+</u>	<u>LRF</u> <u>LEAD</u>	CROSSWIND	<u>CANT</u> _+		
		TARGET				
TGT MOTION	TGT NUMBER	RAN	GE	VIS		
M _+ S	SINGLE SIMUL MULT +	MED (500-1 LONG (1501		IS <u>+</u> IS/TIS <u>—</u>		
		CRITERIA				
TIME (Seconds)						
Main Gun Engageme	nts			TC GNR		
From start of fir From Gunner "Iden From Gunner "Not From TC "Fire" to From TC completion From first round miss):	From target exposure to start of initial fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select ammo, lay, track, and lase: From Gunner "Not Identified" to select ammo, lay, track, and lase: From TC "Fire" to first round fired: From TC completion of lase to first round fired: From first round impact to second round fired (if first round miss):					
.50 Caliber Engag						
,	ure to target sup	hreserou.				
Coax Engagements From target exposure to start of the command: From start of tire command to finish of lay for direction: From Gurner "Identify" to select coax, lay, track: From finish of tracking to target suppression: AIMING ERROR						
Dry Fire-Main Gun			First Round	Second Round		
Deflection error Elevation error f Deflection error	from center of mas rom center of mass from base of targe rom base of targe	s (Precision): et (Battlesight):	mils mils mils mils mils	mils mils mils mils		
Live Fire-Main Gu	n, Coax, .50 Calil	ber	Rounds			
Main Gun Coax .50 Caliber		- 04				

ENGAGEMENT CATEGORY: 8 OBJECTIVE: 8B

; ;		OWN TANK		
WEAPON	TANK MOTION	TURRET	CONTROLS	
MG +	M + S	STAB <u>+</u> NONSTAB	POWER + MANUAL	
.50 CAL	·	MONSTAD		
	CDC TTC	100 1040	CROSSWIND CANT	
THINOUT ON	GPS TIS	LRF LEAD		
FUNCTION MALFUNCTION	+ +	+ -	+ +	
				_
		TARGET		
TGT MOTION	TGT NUMBER	RANG	E VIS	
	SINGLE +	MED (500-150		- 1
M <u>+</u> S	SIMUL	LONG (1501-		
	MULT			
<u> </u>		CRITERIA		
TIME (Seconds)				
Main Gun Engageme	ents		TC G	NR
	sure to start of in			
	re command to finis atify" to select an			
From Gunner "Not	Identified" to sel	ect ammo, lay, tra		
	o first round fired on of lase to first			
From first round	impact to second 1		rst round	
miss):			or	
.50 Caliber Engag	gements			
From target expos	sure to target supp	oression:	-	
Coax Engagements	-			
•	aure to start of fi			
	re command to finis ntify" to select co		ccion:	
	racking to target s			_
AIMING ERROR				
Dry Fire-Main Gu	<u>n</u>		First Round Second Rou	ind
	from center of mas		mils mil	
	from center of mass from base of targe		mils mil	
	from base of target		mils mil	
Live Fire-Main G	un, Coax, .50 Calib	er	Rounds	
Main Gun	-			
Coax				

ENGAGEMENT CATEGORY: 8 OBJECTIVE: 8C

			OWN TAI	IK .		
WEAPON	TANK	MOTION		TURRET	CONTI	ROLS
MG + COAX - .50 CAL +	M S	+		STAB + NONSTAB -	POWEI MANUA	
	GPS	TIS	LRF	LEAD	CROSSWIND	CANT
FUNCTION MALFUNCTION	+	+	+	+	<u>+</u>	±

TARGET							
TGT MOTION M + (MG) S + (.50 CAL)	SINGLESIMUL +	<u>RANGE</u> MED (500-1500) + LONG (1501-3000) +	VIS VIS VIS/TIS				

CRITERIA

	TIME (Seconds)		
-	Main Gun Engagements	TC	GNR
	From target exposure to start of initial fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select ammo, lay, track, and lase:	 ,	
	From Cunner "Not Identified" to select ammo, lay, track, and lase: From TC "Fire" to first round fired: From TC completion of lase to first round fired:		
	From first round impact to second round fired (if first round miss):	or _	
_	.50 Caliber Engagements		
	From target exposure to target suppression:		
	Coax Engagements		
	From target exposure to start of fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select coax, lay, track: From finish of tracking to target suppression:		
	AIMING ERROR		
_	Dry Fire-Main Gun First Round	Second Re	ound
	Deflection error from center of mass (Precision): Elevation error from base of target (Battlesight): Elevation error from base of target (Battlesight): Elevation error from base of target (Battlesight):	m:	ils ils ils ils
_	Live Fire-Main Gun, Coax, .50 Caliber Rounds		
	Main Gun		
	Coax .50 Caliber		
	B-26		

ENGAGEMENT CATEGORY: 9
OBJECTIVE: 9A

		OBJEC	IIVE: JA	
		OWN TANK		
WEAPON	TANK MOTION	TURRET		rrols
MG + COAX + .50 CAL	M S	STAB NONSTAB +	_ POWI	
	GPS TIS	<u>LRF</u> <u>LEAD</u>	CROSSWIND	CANT
FUNCTION MALFUNCTION	+ +	<u> </u>	<u>+</u>	+
		TARGET	·	
TGT MOTION	TGT NUMBER	RANG	<u>e</u>	VIS
M + S	SINGLE SIMUL MULT +	MED (500-15 LONG (1501-	00) <u>+</u> V1 3000) <u>+</u> V1	IS + IS/TIS
		CRITERIA		
TIME (Seconds)				
Main Gun Engagem	ents			TC GNR
From start of fi From Gunner "Ide From Gunner "Not From TC "Fire" t From TC completi	sure to start of in re command to finis mtify" to select an Identified" to sel to first round fired on of lase to first impact to second in	sh of lay for dire mo, lay, track, a lect ammo, lay, tr i: round fired:	ction: nd lase: ack, and lase:	or
.50 Caliber Enga	gements			
From target expo	sure to target supp	pression:		
Coax Engagements	-			
From start of fi From Gunner "Ide	sure to start of fi re command to finis mtify" to select co racking to target s	sh of lay for dire pax, lay, track:	ction:	
AIMING ERROR				
Dry Fire-Main Gu			First Round	Second Round
Elevation error Deflection error	from center of mass from center of mass from base of targe from base of target	(Precision): et (Battlesight):	mils mils mils mils mils	mils mils mils mils mils
Live Fire-Main G	un, Coax, .50 Calib	<u>oer</u>	Rounds	
Main Gun Coax .50 Caliber				

ENGAGEMENT CATEGORY: 9

OBJECTIVE: 9B

		OWN TANK					
WEAPON	TANK MOTION	TURRET	COL	TROLS			
MG + COAX50 CAL +	M	STAB NONSTAB		VER +			
FUNCTION MALFUNCTION	<u>GPS</u> <u>TIS</u> + +	<u>LRF</u> <u>LEAD</u> + +	CROSSWIND +	<u>CANT</u> +			
				·			
		TARGET					
TGT MOTION	TGT NUMBER	<u>RA</u>	NGE	VIS			
M + S + (.50	CAL) SINGLE + MULT -	MED (500- LONG (150		VIS VIS/TIS +			
	CRITERIA						
TIME (Seconds)	· · · · · · · · · · · · · · · · · · ·						
Main Gun Engagem	ents			TC GNR			
From start of firfrom Gunner "Ider From Gunner "Not From TC "Fire" t From TC completion From first round miss):	From target exposure to start of initial fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select ammo, lay, track, and lase: From Gunner "Not Identified" to select ammo, lay, track, and lase: From TC "Fire" to first round fired: From TC completion of lase to first round fired: From first round impact to second round fired (if first round miss):						
.50 Caliber Enga							
	sure to target sup	pression:					
Coax Engagements	_						
From target exposure to start of fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select coax, lay, track: From finish of tracking to target suppression:							
AIMING ERROR							
Dry Fire-Main Gu			First Round	Second Round			
Elevation error : Deflection error	from center of ma from center of mas from base of targ from base of targe	s (Precision): et (Battlesight)	mils mils mils mils mils	mils mils mils mils			
Live Fire-Main G	un, Coax, .50 Cali	ber	Rounds				
Main Gun							
Coax .50 Caliber		B-28					

ENGAGEMENT CATEGORY: 9

OBJECTIVE: 9C

1		OWN TAI	ĪK			
WEAPON	TANK MOTION	<u> </u>	TURRET	<u>C</u>	CONTROLS	
MG + COAX	M		STAB	_	OWER +	
.50 CAL	3 <u>+</u>		NONSTAB +		IANUAL	
	CDC	- 27	T 70 4 70	6D0 6611Th		
	GPS TIS	LRF	<u>LEAD</u>	CROSSWIN		
FUNCTION MALFUNCTION	<u>+</u> <u>+</u>	+	+	+_	+	
			*****		*****	
		TARGET	<u> </u>			
TGT MOTION	TGT NUM	BER	RANGI	Ξ	VIS	
M +	SINGLE		ED (500-150	- 00)	VIS +	
s	SIMUL		ONG (1501-		VIS/TIS	
	MULT					
		CRITERI	A			
TIME (Seconds)			·			
Main Gun Engagements TC GNR						
From start of fir From Gunner "Iden From Gunner "Not	From target exposure to start of initial fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select ammo, lay, track, and lase: From Gunner "Not Identified" to select ammo, lay, track, and lase:					
From TC "Fire" to From TC completion			fired:			
From Airst round				st round		
miss):					or	
.50 Caliber Engag						
From target expos	sure to target	suppression	:			
Coax Engagements						
From target expose From start of fin From Gunner "Ider From finish of targets"	re command to f ntify" to selec	inish of la t coax, lay	y for direc , track:	tion:		
AIMING ERROR						
Dry Fire-Main Gur	<u>1</u>			First Roun	d Second Round	
Deflection error and Deflection error Elevation error	from center of from base of t	mass (Preci arget (Batt	sion): lesight):	mils mils mils mils mils mils	mils	
Live Fire-Main G	ın, Coax, .50 C	aliber		Rounds		
Main Gun						
Coax .50 Caliber						
· > CONTINET						

3-29

ENGAGEMENT CATEGORY: 10

			OBJECTIVE:	IUA		
		OWN TANK				
WEAPON MG + COAX .50 CAL	TANK MOTION M s +	TURI STAB NONS	CAB +	CONTR POWER MANUA	+	
FUNCTION MALFUNCTION	<u>GPS</u> <u>TIS</u> +	+		SSWIND - -	<u>CAN</u> 7	
	**************************************	TARGET				
TGT MOTION M + S	TGT NUMBER SINGLE + SIMUL MULT	MED (5	RANGE 500-1500) (1501-3000)	vis		<u>. </u>
		CRITERIA				
TIME (Seconds)						
Main Gun Engager	nents				TC	GNI
From start of fi From Gunner "Ide From Gunner "Not From TC "Fire" t From TC complete	esure to start of interest command to find entify" to select a literature of the lit	ish of lay for ammo, lay, tra elect ammo, la ed: st round fired	direction: ack, and lase ay, track, ar	nd lase:	o1	
.50 Caliber Enga	agements					
From target expo	sure to target sup	ppression:		-		
Coax Engagements	<u> </u>					
From Start of fi	sure to start of interest of the command to find entify" to select of the contractions to target	ish of lay for coax, lay, tra				
AIMING ERROR				.,.		
Dry Fire-Main Gu	<u>m</u>		First	Round	Second	Round
Elevation error Deflection error	from center of man from center of man from base of target from base of target	ss (Precision) get (Battlesig	: ght):	mils mils mils mils		mils mils mils mils
Live Fire-Main (Jun, Coax, .50 Cal	iber	Rounds	3		

B-30

Main Gun Coax

.50 Caliber

ENGAGEMENT CATEGORY: 10

OBJECTIVE: 10B

		OWN TANK		
WEAPON	TANK MOTION	TURRET	co	NTROLS
MC + COAX +	м * <u>+</u>	STAB NONGTAR	 ,	WER +
.50 CAL	3	NONSTAB	T PA	NUAL
	GPS TIS	LRF LEAD	CROSSWIND	CANT
FUNCTION	+	+	+	+
MALFUNCTION	± =			
		TARGET		
TGT MOTION	TGT NUMBER		NGE	VIS
	SINGLE	MED (500-1		VIS
м <u>+</u> s <u>—</u>	SIMUL H	LONG (150)		VIS/TIS +
		CRITERIA		J
TIME (Seconda)				
TIME (Seconds) Main Gun Engageme	onts			TC GNR
From Start of fir From Gunner "Iden From Gunner "Not From TC "Fire" to From TC completion	sure to start of i re command to fini ntify" to select a Identified" to se o first round fire on of lase to firs impact to second	sh of lay for dir mmo, lay, track, lect ammo, lay, t d: t round fired:	ection: and lase: rack, and lase	or
.50 Caliber Enga	gements			
From target expos	sure to target sup	pression:		
Coax Engagements	_			
From start of fir From Gunner "Iden	sure to start of f re command to fini ntify" to select c racking to target	sh of lay for dir oax, lay, track:	ection:	
AIMING ERROR				
Dry Fire-Main Gun	<u>n_</u>		First Round	Second Round
Elevation error : Deflection error	from center of ma from center of mas from base of targ from base of targe	s (Precision): et (Battlesight):	mils mils mils mils mils	mils mils mils mils
Live Fire-Main G	un, Coax, .50 Cali	<u>ber</u>	Rounds	
Main Gun Coax				

.50 Caliber

ENGAGEMENT CATEGORY: 10

OBJECTIVE: 10C

		OWN TAN	K		
<u>WEAPON</u> <u>T</u>	ANK MOTION		TURRET	<u>(</u>	CONTROLS
MG + COAX - .50 CAL +	M		STAB NONSTAB +	-	POWER + MANUAL
GPS FUNCTION MALFUNCTION ±	<u>TIS</u> +	<u>LRF</u> +	LEAD +	CROSSWIN +	<u>CANT</u> +
		TARGET			
TGT MOTION M + S + (.50 CAL)	TGT NUMBER SINGLE SIMUL + MULT	M1	RANGE ED (500-150 ONG (1501-3	00) +	VIS VIS VIS/TIS +
		CRITERIA	A		
TIME (Seconds)	· ····································			<u></u>	
Main Gun Engagements					TC GNR
From target exposure of From Start of fire con From Cunner "Identify" From Gunner "Not Identify From TC "Fire" to fire From TC completion of From first round impactments):	mmand to fini: 'to select a cified" to se st round fire lase to firs	sh of lay mmo, lay, lect ammo d: t round i	y for direct, and track, and track, and track, and track.	tion: d lase: ck, and la	se: or
.50 Caliber Engagement	s				
From target exposure t	o target sup	pression:	1		
From target exposure to From start of fire con From Gunner "Identify" From finish of tracking	mand to finis	sh of lay oax, lay,	for directive track:	tion:	
AIMING ERROR					
Dry Fire-Main Gun				First Roun	d Second Round
Deflection error from Elevation error from Deflection error from Elevation error from	enter of mass base of targe	s (Precis	ion): lesight):	mils mils mils mils	mils mils
Live Fire-Main Gun, Co	ax, .50 Calil	per	,	Rounds	
Main Gun Coax .50 Caliber	,	R_32			

ENGAGEMENT CATEGORY: 11

OBJECTIVE: 11A

		OWN TANK				
WEAPON	TANK MOTION	TURRET	CON'	TROLS		
MG +	M	STAB		ER +		
COAX	s +	NONSTAB +				
FUNCTION	<u>GPS</u> <u>TIS</u> +	LRF LEAD	CROSSWIND +	CANT ±		
MALFUNCTION		+				
		TARGET	· · · · · · · · · · · · · · · · · · ·			
TGT MOTION	TGT NUMBER	RANC	<u>SE</u>	<u>VIS</u>		
M + s	SINGLE + SIMUL MULT	MED (500-15 LONG (1501-	500) V: -3000) V:	IS <u>+</u> IS/TIS <u>—</u>		
		CRITERIA				
TIME (Seconds)						
Main Gun Engageme	nts			TC GNR		
From start of fir From Gunner "Iden From Gunner "Not From TC "Fire" to From TC completio	From target exposure to start of initial fire command: From start of fire command finish of lay for direction: From Gunner "Identify" to select ammo, lay, track, and lase: From Gunner "Not Identified" to select ammo, lay, track, and lase: From TC "Fire" to first round fired: From TC completion of lase to first round fired: From first round impact to second round fired (if first round					
.50 Caliber Engag	ements					
From target expos	ure to target supp	pression:				
Coax Engagements						
From start of fir From Gunner "Iden	ure to start of fi e command to finis tify" to select co acking to target s	sh of lay for dire bax, lay, track:	ection:			
AIMING ERROR						
Dry Fire-Main Gun	_		First Round	Second Round		
Elevation error f Deflection error	from center of mass rom center of mass from base of targe rom base of target	s (Precision): et (Battlesight):	mils mils mils mils mils	mils mils mils mils		
Live Fire-Main Gu	n, Coax, .50 Calib	per	Rounds			
Main Gun Coax .50 Caliber						

FIRE DELIVERY METHOD: EMERGENCY PRECISION ENGAGEMENT CATEGORY: 11

OBJECTIVE: 11B

			·	
		OWN TANK	-	
WEAPON	TANK MOTION	TURRET	<u>CO1</u>	TROLS
MG +	M	STAB	POW	
COAX +	s <u>+</u>	NONSTAB	+ MAN	IVAL
	GPS TIS	LRF LEAD	CROSSWIND	CANT
FUNCTION MALFUNCTION	+ +	+ +	+	_+ _
	<u> </u>			
		MA DODM		
mom Momiton	mom JRaman	TARGET	NO.	*****
TGT MOTION	TGT NUMBER		NGE	VIS
M + S	SINGLE SIMUL MULT +	MED (500- LONG (150		IS + IS/TIS —
		CRITERIA		
TIME (Seconds)				
Main Gun Engageme	ents			TC GNR
	sure to start of i			
	re command to fini ntify" to select a			
From Gunner "Not	Identified" to se	lect ammo, lay,		:
	o first round fire			
From first round	impact to second		first round	
miss):				or
.50 Caliber Engag				
_	sure to target sup	pression:		
Coax Engagements	-	A		
	and to ntart of five command to fini		rection:	
From Gunner "Iden	ntify" to select c	oax, lay, track:		
	racking to target	suppression:		
AIMING ERROR	<u> </u>		Disco Pour	Sociand David
Dry Fire-Main Gur	<u>1 </u>	on /Propinion	First Round	Second Round mils
	from center of mas	•	mils	mils
	from base of targ		: mils mils	mils mils
	from base of targe in, Coax, .50 Cali	_	Rounds	штт
Main Gun	in, coak, .Ju call	<u>ner</u>	Acuitas	
Coax				
.50 Caliber				

ENGAGEMENT CATEGORY: 11 OBJECTIVE: 11C

}						
WEAPON MG + COAX50 CAL +	TANK MOTION M S +	OWN TANK TURRET STAB NONSTAB +	POW	TROLS ER + TUAL		
FUNCTION MALFUNCTION	<u>GPS</u> <u>TIS</u>	<u>LRF</u> <u>LEAD</u> + + +	CROSSWIND +	<u>CANT</u>		
		TARGET				
TGT MOTION M + S + (.50	TGT NUMBER SINGLE SIMUL + MULT	RANC MED (500-15		VIS IS <u>+</u> IS/TIS		
		CRITERIA				
TIME (Seconds)						
Main Gun Engagem	ents			TC GNR		
From start of fi From Gunner "Ide From Gunner "Not From TC "Fire" t From TC completi	re command to fini ntify" to select a Identified" to se o first round fire on of lase to firs		ction: nd lase: ack, and lase	: or		
.50 Caliber Enga	gements					
From target expo	sure to target sup	pression:				
From start of fi From Gunner "Ide	 sure to start of f	sh of lay for dire oax, lay, track:	ction:			
Dry Fire-Main Gu	n		First Round	Second Round		
Deflection error Elevation error Deflection error	from center of ma from center of mas from base of targ from base of targe	s (Precision): et (Battlesight):	mils mils mils mils mils	mils mils mils mils mils		
Live Fire-Main G	un, Coax, .50 Cali	<u>ber</u>	Rounds			
Main Gun Coax .50 Caliber						

ENGAGEMENT CATEGORY: 12
OBJECTIVE: 12A

			ODJECTIVE: 12		
		OWN TANK			
WEAPON	TANK MOTION	TURR	ET	CONTROLS	
MG +	M	STAB		POWER +	
COAX .50 CAL	s <u>+</u>	NONST	AB +	MANUAL	
	CDO MTG	***	AD CROCK	**************************************	
FUNCTION	GPS TIS	<u>LRF</u> <u>LE</u>	AD CROSSV	VIND CANT	
MALFUNCTION	+ +	<u>+</u>	+ +	+	
		TARGET			
TGT MOTION	TGT NUMBER	<u>.</u>	RANGE	<u>vis</u>	
M +	SINGLE +	MED (5	00-1500)	vis <u>+</u>	_
s	SIMUL MULT	LONG (1501-3000) +	_ VIS/TIS	_
		CRITERIA			
TIME (Seconds)					
Main Gun Engagem	ents			TC	GNR
	sure to start of i				
	re command to fini ntify" to select a				
From Gunner "Not	Identified" to se	lect ammo, la		lase:	
	o first round fire on of lase to firs		:		
From first round miss):	impact to second	round fired (if first round		
.50 Caliber Enga	gements			or	
	sure to target sup	pression:			
Coax Engagements	one or order of	F 100010			
	- sure to start of f	ire command:			
From start of fi	re command to fini	sh of lay for			
	ntify" to select c racking to target		ck:		
AIMING ERROR					
Dry Fire-Main Gu	n_		First Ro	ound Second I	lound
	from center of ma	•			nils
	from center of mas from base of targ	•			nils nils
	from base of targe				ils
Live Fire-Main G	un, Coax, .50 Cali	<u>ber</u>	Rounds		
Main Gun					
Coax .50 Caliber					

ENGAGEMENT CATEGORY: 12

OBJECTIVE: 12B

OWN TANK					
WEAPON	TANK MOTION	TURRET		TROLS	
MG + COAX + .50 CAL	M S <u>+</u> _	STAB NONSTAB +		UAL	
FUNCTION	GPS TIS	LRF LEAD	CROSSWIND	CANT	
MALFUNCTION	<u> </u>	<u> </u>	<u>+</u>		
	——————————————————————————————————————	TARGET	······································		
TGT MOTION	TGT NUMBER	RANC	<u>ee</u>	VIS	
M _±_ S	SINGLE SIMUL MULT +	MED (500-15 LONG (1501-	500) <u>+</u> V -3000) <u>+</u> V	IS IS/TIS	
		CRITERIA			
TIME (Seconds)					
Main Gun Engageme	ents_			TC GNR	
From target exposure to start of initial fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select ammo, lay, track, and lase: From Gunner "Not Identified" to select ammo, lay, track, and lase: From TC "Fire" to first round fired: From TC completion of lase to first round fired: From first round impact to second round fired (if first round miss):					
.50 Caliber Engag					
_	sure to target supp	ression:			
Coax Engagements From target exposure to start of fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select coax, lay, track: From finish of tracking to target suppression:					
AIMING ERROR Dry Fire-Main Gur	· · · · · · · · · · · · · · · · · · ·		First Round	Second Round	
Deflection error Elevation error in Deflection error	from center of mass from center of mass from base of targe from base of target	(Precision): et (Battlesight):	mils mils mils mils	mils mils mils mils mils	
	ın, Coax, .50 Calib	er	Rounds		
Main Gun Coax .50 Caliber					

ENGAGEMENT CATEGORY: 12

or _

OBJECTIVE: 12C

					 	 	
			OWN TAN	K			
WEAPON	TANK MOTION TURRET			CONTROLS			
MG + COAX - .50 CAL +	M S	+		STAB NONSTAB +	_	POWER + HANUAL	
	GPS	TIS	LRF	LEAD	CROSSWI	IND CAI	T
FUNCTION MALFUNCTION	+	_+	<u>+</u>	<u>+</u>	<u>+</u>		
TARGET							
TGT MOTION		TGT NUMBER	<u> </u>	RANGI	<u> </u>	VIS	
M <u>+</u> S <u>+</u> (.50	CAL)	SINGLE + SIMUL + MULT		ED (500-150 ONG (1501-3		VIS VIS/TIS	+
			CRITERI	A			
TIME (Seconds)							
Main Gun Engagen	ents					TC	GNI
From target expo From start of fi From Gunner "Ide From Gunner "Not From TC "Fire" t From TC completi From first round	re comma entify" t : Identif :o first .on of la	nd to fini o select a ied" to se round fire se to firs	sh of la mmo, lay lect amm d: t round	y for dired, track, aro, lay, tra	ction: nd lase: nck, and l		-

.50 Caliber Engagements

From target exposure to target suppression:

Coax Engagements

miss):

From target exposure to start of fire command:

From start of fire command to finish of lay for direction:

From Gunner "Identify" to select coax, lay, track:

From finish of tracking to target suppression:

AIMING ERROR	·····	
Dry Fire-Main Gun	First Round	Second Round
Deflection error from center of mass (Precision): Elevation error from center of mass (Precision): Deflection error from base of target (Battlesight): Elevation error from base of target (Battlesight):	mils mils mils mils mils	mils mils mils mils
Live Fire-Main Gun, Coax, .50 Caliber	Rounds	
Main Gun Coax .50 Caliber		

ENGAGEMENT CATEGORY: 13

OBJECTIVE: 13A

		ОВЈЕ	CTIVE: 13A	
		OWN TANK	~ ~~~~~ ~~~~	
WEAPON	TANK MOTION	TURRET	COL	TROLS
MG +	М	STAB	POW	TER +
COAX	s <u>+</u>	NONSTAB	E MAN	TUAL
.50 CAL				
	GPS TIS	LRF LEAD	CROSSWIND	CANT
FUNCTION	+	<u>+</u>	+	+
MALFUNCTION	+	<u> </u>		
L				
		TARGET		
TGT MOTION	TGT NUMBER	RANG	<u>ge</u>	<u>vis</u>
M +	SINGLE	MED (500-1		'IS +
s	SIMUL	LONG (1501-		IS/TIS
	MULT +	~		
		CRITERIA		
	·			
TIME (Seconds)				
Main Gun Engagem	ents_			TC GNR
	sure to start of i			
	re command to fini ntify" to select a			
	Identified" to se			
	o first round fire		•	
	on of lase to firs impact to second		rst round	
miss):				or
.50 Caliber Enga	gements_			
From target expo	sure to target sup	pression:		
Coax Engagements	· .	-		
	— sure to start of f	ire command:		
From start of fi	re command to fini	sh of lay for dire	ction:	
	ntify" to select o			
	racking to target	erhhreagrou:		
AIMING ERROR			Time Days	Carland Day 1
Dry Fire-Main Gu		47 • • • • •	First Round	Second Round
	from center of ma from center of mas		mils mils	mils
	from base of targ		mils	mils
Elevation error	from base of targe	t (Battlesight):	mils	mils
Live Fire-Main G	un, Coax, .50 Cali	ber	Rounds	
Main Gun				
Coax .50 Caliber				
varruer				

ENGAGEMENT CATEGORY: 13 OBJECTIVE: 13 B

	OBJECTIVE: 13 B				
		OWN TANK			
WEAPON	TANK MOTION	TURRET	CON	TROLS	
MG +	м	STAB	POW		
COAX	s <u>+</u>	NONSTAB	E_ MAN	UAL	
.50 CAL					
	GPS TIS	<u>LRF</u> <u>LEAD</u>	CROSSWIND	CANT	
FUNCTION	<u>+</u> +	_ _	_+_	<u>+</u> _	
MALFUNCTION		+			
		TARGET			
TGT MOTION	TGT NUMBER			VIS	
M +	SINGLE <u>+</u> SIMUL	_ MED (500-1: LONG (1501-		IS <u>+</u> IS/TIS	
<u> </u>	MULT	_ 2016 (1501	3000) <u></u> v.		
L					
		CRITERIA			
TIME (Seconds)					
Main Gun Engagem	ents			TC GNR	
		nitial fire comma	nd:		
From start of fi	re command to fini	sh of lay for dire	ection:		
		mmo, lay, track, a elect ammo, lay, tr			
From TC "Fire" t	o first round fire	ed:	•		
	on of lase to firs	it round fired: round fired (if f:	rst round		
miss):				or	
.50 Caliber Enga	gements				
From target expo	sure to target sup	pression:			
Coax Engagements					
	sure to start of i				
	re command to fini ntify" to select (ish of lay for dire	ection:	***************************************	
	racking to target				
AIMING ERROR					
Dry Fire-Main Gu	n		First Round	Second Round	
	from center of ma		mils	mils	
	from center of mas from base of targ		mils mils	mils mils	
	from base of targe		mils	mils	
	un, Coax, .50 Cali		Rounds	_	
Main Gun		-			
Coax					
.50 Caliber		7. 40			

ENGAGEMENT CATEGORY: 13

OBJECTIVE: 13C

		OWN TANK		
WEAPON MG COAX + .50 CAL +	TANK MOTION M S +	TURRET STAB NONSTAB	POW	TROLS VER + VUAL
FUNCTION MALFUNCTION	<u>GPS</u> <u>TIS</u> <u>+</u> <u>+</u>	<u>LRF</u> <u>LEAD</u> + +	CROSSWIND +	<u>CANT</u> _+
		TARGET		
TGT MOTION M + S + (.50	TGT NUMBER SINGLE CAL) SIMUL + MULT	MED (500-1	.500) <u>+</u> V	VIS IS + IS/TIS -
		CRITERIA		
From start of fir From Gunner "Iden From Gunner "Not From TC "Fire" to From TC completion From TC completion first round miss): .50 Caliber Engage From target expose Coax Engagements From target expose From start of fir	cure to start of ince command to finitify" to select a Identified" to select a first round fire on of lase to first impact to second cements cure to target support to start of its command to finitify" to select of	t round fired: round fired (if f pression: ire command: sh of lay for dir coax, lay, track:	ection: and lase: rack, and lase irst round	or
Dry Fire-Main Gun Deflection error Elevation error f Deflection error Elevation error f	from center of ma from center of mas from base of targ	s (Precision): et (Battlesight):	First Round mils mils mils mils mils	Second Round mils mils mils mils mils
Live Fire-Main Gu Main Gun Coax .50 Caliber	n, Coax, .50 Cali	<u>ber</u>	Rounds	

ENGAGEMENT CATEGORY: 14

OBJECTIVE: 14A

	***	OWN TANK]	
WEAPON	TANK MOTTON		CON	TTPOT S	
MG +	TANK MOTION	TURRET		TROLS	
COAX .50 CAL	s <u>+</u>	STAB NONSTAB <u>+</u>		TUAL	
FUNCTION	GPS TIS	LRF LEAD	CROSSWIND	CANT	
MALFUNCTION	+ +	+ +		<u>+</u>	
		TARGET			
TGT MOTION	IGT NUMBER	RAN	<u>GE</u>	<u>vis</u>	
M + S	SINGLE + SIMUL MULT	MED (500-1. LONG (1501-	500) v -3000) v	IS <u>+</u> IS/TIS <u>—</u>	
		CRITERIA			
TIME (Seconds)					
Main Gun Engageme	nts			TC GNR	
From target exposure to start of initial fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select ammo, lay, track, and lase: From TC "Fire" to first round fired: From TC completion of lase to first round fired:					
miss):	impact to second i	round lited (II I	ist round	or	
.50 Caliber Engag	ements				
	ure to target supp	ression:			
Coax Engagements					
From start of fir From Gunner "Iden	ure to start of fine command to finistify" to select coacking to target s	sh of lay for dire bax, lay, track:	ection:		
AIMING ERROR					
Dry Fire-Main Gun	<u> </u>		First Round	Second Round	
Elevation error f Deflection error Elevation error f	rom base of target	s (Precision): et (Battlesight): c (Battlesight):	mils mils mils mils mils	mils mils mils mils mils	
Live Fire-Main Gu	n, Coax, .50 Calib	<u>er</u>	Rounds		
Main Gun Coax .50 Caliber					

ENGAGEMENT CATEGORY: 14
OBJECTIVE: 14B

		ODJEC	IIVE: 14D					
OWN TANK								
WEAPON	TANK MOTION	TURRET	CONT	ROLS				
MG +	м	STAB	POWE					
COAX .50 CAL	s <u>+</u>	NONSTAB	MANU.	AL				
.30 WH				1				
	GPS TIS	<u>LRF</u> <u>LEAD</u>	CROSSWIND	CANT				
FUNCTION MALFUNCTION	+ +			-				
PALFUNCTION	<u> </u>	王王	_±_	_±_				
TOT MOTION	TOT MINDED	TARGET	·	UTE				
TGT MOTION	TGT NUMBER		-	VIS				
M + S	SINGLE	MED (500-150 LONG (1501-		S/TIS +				
	MULT +	•	· ——					
CRITERIA								
TIME (Seconds)								
Main Gun Engagem	ents			TC GNR				
From start of fi From Gunner "Ide From Gunner "Not From TC "Fire" t From TC completi	re command to finis ntify" to select as Identified" to sel o first round fired on of lase to first		ction: nd lase: ack, and lase:					
.50 Caliber Enga	gements							
From target expo	sure to target supp	pression:						
Coax Engagements	_							
From start of fi From Gunner "Ide	sure to start of fire command to finisentify" to select coracking to target a	sh of lay for <mark>dire</mark> coax, lay, track:	ction:					
AIMING ERROR								
Dry Fire-Main Gu	n_		First Round	Second Round				
Elevation error Deflection error	from center of mass from center of mass from base of target from base of target	s (Precision): et (Battlesight):	mils mils mils mils mils	mils mils mils mils mils				
Live Fire-Main G	un, Coax, .50 Calib	per	Rounds					
Main Gun								
Coax								

ENGAGEMENT CATEGORY: 14

OBJECTIVE: 14C

OWN TANK								
WEAPON MG COAX + .50 CAL +	TANK MOTION M S +	<u>TURR</u> STAB	ET AB	CONTROLS POWER + MANUAL				
FUNCTION MALFUNCTION	<u>GPS</u> <u>TIS</u>	LRF LE	AD CROSSWI	IND CANT ±				
TARGET								
TGT MOTION M + (COAX) S + (.50 C		MED (5	RANGE 00-1500) + 1501-3000)	VIS VIS + VIS/TIS				
CRITERIA								
Main Gun Engagements TC GNR From target exposure to start of initial fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select ammo, lay, track, and lase: From TC "Fire" to first round fired: From TC completion of lase to first round fired: From first round impact to second round fired (if first round miss): Coax Engagements From target exposure to target suppression: Coax Engagements From start of fire command to finish of lay for direction: From Gunner "Identify" to select coax, lay, track: From finish of tracking to target suppression: AIMING ERROR								
Dry Fire-Main Gur Deflection error Elevation error Deflection error Elevation error	from center of man from center of mass from base of targe from base of targes in, Coax, .50 Calil	s (Precision); et (Battlesigh t (Battlesigh)	mil: mil	s mils s mils s mils				
Main Gun Coax .50 Caliber		B-44						

ENGAGEMENT CATEGORY: 15

OBJECTIVE: 15A

OWN TANK							
WEAPON MG + COAX . .50 CAL	TANK MOTION M +	TURRET STAB NONSTAB	PO	NTROLS WER NUAL _+			
FUNCTION MALFUNCTION	<u>GPS</u> <u>TIS</u> <u>+</u> +	<u>LRF LEAD</u> + +	CROSSWIND +	CANT 			
TARGET							
TGT MOTION M + S	TGT NUMBER SINGLE + SIMUL MULT	<u>RANG</u> MED (500-15 LONG (1501-	00)	VIS VIS VIS/TIS			
CRITERIA							
TIME (Seconds)							
Main Gun Engagements TC GNR							
From target exposure to start of initial fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select ammo, lay, track, and lase: From Gunner "Not Identified" to select ammo, lay, track, and lase: From TC "Fire" to first round fired: From TC completion of lase to first round fired: From first round impact to second round fired (if first round miss):							
.50 Caliber Engag	gements						
From target exposure to target suppression:							
Coax Engagements From target exposure to start of fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select coax, lay, track: From finish of tracking to target suppression:							
AIMING ERROR Dry Fire-Main Gur	n		First Round	Second Round			
Deflection error Elevation error Deflection error	from center of mass from center of mass from base of targe from base of targes	(Precision): et (Battlesight):	mils mils mils mils mils	mils mils mils mils mils			
Live Fire-Main G	un, Coax, .50 Calib	per	Rounds				
Main Gun Coax							

ENGAGEMENT CATEGORY: 15

OBJECTIVE: 15B

				
		OWN TANK		
WEAPON	TANK MOTION	TURRET	<u>CO1</u>	TROLS
MG +	M	STAB	POW	
COAX .50 CAL	s <u>+</u>	NONS TAB	<u>+</u> MAN	TUAL +
	GPS TIS	<u>LRF</u> <u>LEAD</u>	CROSSWIND	CANT
FUNCTION MALFUNCTION	+ +	+ +	+	
				
		TARGET	<u></u>	
TGT MOTION	TGT NUMBER	RA	NGE	VIS
M + S	SINGLE	MED (500-	 1500) + V	'IS +
s	SIMUL	LONG (150	1-3000) \pm V	TIS/TIS
	MULT +			
		CRITERIA		
TIME (Seconds)	· · · · · · · · · · · · · · · · · · ·			
Main Gun Engageme	ents			TC GNR
	ure to start of in			
	e command to finis			
From Gunner "Not	Identified" to sel	lect ammo, lay,		:
	o first round fired on of lase to first			
From first round	impact to second		first round	
miss):				or
.50 Caliber Engag				
-	ure to target supp	pression:		
Coax Engagements				
	sure to start of fire command to finis		rection:	
From Gunner "Iden	tify" to select co	oax, lay, track:		
	acking to target a	suppression:		
AIMING ERROR				
Dry Fire-Main Gun			First Round	Second Round
	from center of mass		mils mils	mils
Deflection error	from base of targe	et (Battlesight)		mils
	rom base of target	_	mils	mils
Live Fire-Main Gu	in, Coax, .50 Calib	per	Rounds	
Main Gun Coax				
.50 Caliber				

ENGAGEMENT CATEGORY: 15

	PANUAL FRECISI	OBJE	CTIVE: 15C	
		OWN TANK		
WEAPON MG COAX + .50 CAL +	TANK MOTION M S +	TURRET STAB NONSTAB	POW	TROLS TER TUAL _+
FUNCTION	<u>TIS</u> + +	<u>LRF</u> <u>LEAD</u>	CROSSWIND +	CANT _+
		TARGET	·	
TGT MOTION M + S + (.50 CAI	SINGLE SIMUL +	MED (500-15 LONG (1501-		VIS IS + IS/TIS —
	(CRITERIA		
Main Gun Engagement From target exposur From start of fire From Gunner "Ident: From TC "Fire" to f From TC completion From first round in miss): .50 Caliber Engager From target exposur Coax Engagements From target exposur From start of fire From Gunner "Ident: From finish of trace AIMING ERROR	re to start of ind command to finish fy" to select amm lentified" to select first round fired; of lase to first apact to second roments The to target suppresses to start of first command to finish fy" to select coarse.	n of lay for direction, lay, track, a sect ammo, lay, track; round fired: pund fired (if firection: secommand: n of lay for direction, lay, track:	ction: nd lase: ack, and lase rst round	TC GNR
Dry Fire-Main Gun Deflection error from Elevation	om center of mass com base of target om base of target	(Precision): (Battlesight): (Battlesight):	First Round mils mils mils mils	Second Round mils mils mils mils mils
Live Fire-Main Gun, Main Gun Coax .50 Caliber		<u> </u>	Rounds	

FIRE DELIVERY METHOD: MANUAL BATTLESIGHT

ENGAGEMENT CATEGORY: 16

OBJECTIVE: 16A

				<u> </u>			
			OWN TAN	ĸ			
WEAPON	TANK	MOTION		TURRET	<u>C</u>	ONTROLS	
MG <u>+</u>	М			STAB	_	OWER	
COAX .50 CAL	s	+_		NONSTAB	_ M	ANUAL +	
.50 @							
	GPS	TIS	LRF	LEAD	CROSSWIN	<u>CAN</u>	<u>T</u>
FUNCTION MALFUNCTION	+	+	+	+_	+_		
- IZZET UNCTION			<u>-</u> - <u>-</u> -	<u>.T.</u>	. <u>T.</u>	t	<u> </u>
			TARGET				
TGT MOTION	•	IGT NUMBER		RANG	E	VIS	
	-	SINGLE +	•	ED (500-150		VIS +	
M + s	5	SIMUL			3000) +		
	1	MULT					
_			CRITERI	A			
TIME (Seconds)							
Main Gun Engagem	ents					TC	GNR
From target expo	sure to s	start of i	nitial f	ire command	1:		
From start of fi From Gunner "Ide							
From Gunner "Not	Identifi	led" to se	lect amm			se:	
From TC "Fire" t From TC completi				fired:			
From first round					st round		
miss):						O	r
.50 Caliber Enga							
From target expo		target supp	pression	:			
Coax Engagements	_						
From target expo From start of fi					tion:		
From Gunner "Ide	ntify" to	select c	oax, lay	, track:			
From finish of t	racking t	to target a	suppress:	ion:			
AIMING ERROR					Ti Dave	1 01	Da
Dry Fire-Main Gu			/D	4 a 4 a a \ .	First Round	<u>Second</u>	
Deflection error Elevation error			•		mils mils		mils mils
Deflection error					mils		mils
Elevation error		_	-	esignt):	mils	*****	mils
Live Fire-Main G Main Gun	uii, COAX	O CHILL	<u> </u>		Rounds		
Coax							
.50 Caliber							

FIRE DELIVERY METHOD: MANUAL BATTLESIGHT

ENGAGEMENT CATEGORY: 16

OBJECTIVE: 16B

				1	
	m.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	OWN TANK	70.5	TROY C	
WEAPON	TANK MOTION	TURRET		TROLS	
MG + COAX	м s <u>+</u>	STAB NONSTAB _	POWI	ERUAL +	
.50 CAL					
•	GPS TIS	<u>LRF</u> <u>LEAD</u>	CROSSWIND	CANT	
FUNCTION MALEUNCTION	+ +	+ +	+	+	
MALFUNCTION	<u> </u>	<u> </u>		<u> </u>	
		TARGET			
TGT MOTION	TGT NUMBER	R RAN	GE	vis	
M +	SINGLE	MED (500-1	 500) + V:	IS +	
s	SIMUL +	LONG (1501	-3000) <u>+</u> V	IS/TIS	
	MOLI _T				
		CRITERIA			
TIME (Seconds)					
Main Gun Engagem	ents			TC GNR	
From start of fi From Gunner "Ider From Gunner "Not From TC "Fire" to From TC completion	sure to start of in re command to fini ntify" to select a Identified" to se o first round fire on of lase to firs impact to second	sh of lay for dirumno, lay, track, elect ammo, lay, tod: et round fired:	ection: and lase: rack, and lase		
.50 Caliber Enga	gements				
From target expo	sure to target sup	pression:			
Coax Engagements	_				
From target exposure to start of fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select coax, lay, track: From finish of tracking to target suppression:					
AIMING ERROR	 	······································			
Dry Fire-Main Gu	n_		First Round	Second Round	
Elevation error Deflection error	from center of mas from center of mas from base of targ from base of targe	ss (Precision): get (Battlesight):	mils mils mils mils mils	mils mils mils mils	
Live Fire-Main G	un, Coax, .50 Cali	ber	Rounds		
Main Gun Coax					
.50 Caliber					

B-49

FIRE DELIVERY METHOD: MANUAL BATTLESIGHT

ENGAGEMENT CATEGORY: 16

OBJECTIVE: 16C

!		OWN TANK			
WEAPON	TANK MOTION		URRET		NTROLS
MG + COAX - + .50 CAL +	s <u>+</u>	ST. NO	AB NSTAB <u>+</u>		WER NUAL
	GPS TIS	LRF	LEAD	CROSSWIND	CANT
FUNCTION MALFUNCTION	<u>+</u> +	+	王	<u> </u>	
		TARGET			
TGT MOTION	TGT NUMBER	<u>R</u>	RANGE		<u>vis</u>
M + S + (.50 C	SINGLE SIMUL +		(500-1500 G (1501-30		VIS + VIS/TIS
		CRITERIA			
TIME (Seconds)					
Main Gun Engageme	ents				TC GNF
From target expose From start of fir From Gunner "Iden From Gunner "Not From TC "Fire" to From TC completion From first round miss):	e command to finitify" to select a Identified" to select a first round first r	sh of lay: mmo, lay, elect ammo, ed: st round fi	for direct track, and lay, trac red:	tion: i lase: ck, and las	or
.50 Caliber Engag					
From target expos	sure to target sup	pression:			
From target expose From start of fir From Gunner "Iden From finish of tr	e command to findatify" to select o	sh of lay :	for direct track:	tion:	
AIMING ERROR				First Pound	Second Round
Dry Fire-Main Gun Deflection error Elevation error Elevation error Elevation error	from center of magical from center of magical from base of targets.	s (Precisions) (Precisions)	ion): on); sight);	First Round mils mils mils mils mils	mils mils mils mils
Live Fire-Main Gu	in, Coax, .50 Cali	ber	1	Rounds	
Main Gun Coax .50 Caliber					

B~50

ENGAGEMENT CATEGORY: 17

OBJECTIVE: 17A

		OWN TANK		
WEAPON	TANK MOTION	TURRET	CONTRO	<u>OLS</u>
MG +	M +	STAB +	POWER	
COAX .50 CAL	s	NONSTAB	MANUAI	·
	GPS TIS	<u>LRF</u> <u>LEAD</u>	CROSSWIND	CANT
FUNCTION MALFUNCTION	+ +	+ +	+_	_+
1121 0.101		<u> </u>	 -	
		mADOD#		
TOT NOTTON	TOT STIMED	TARGET	,	re
TGT MOTION	TGT NUMBER			<u> </u>
M + S	SINGLE + SIMUL	MED (500-15 LONG (1501-		TIS +
	MULT	•		
L				· · · · · · · · · · · · · · · · · · ·
		CRITERIA		
TIME (Seconds)				
Main Gun Engageme	ents		_	TC GNR
	sure to start of in			
	re command to finis atify" to select an			
	Identified" to sel			
	first round fired		_	
	on of lase to first impact to second i		rst round	
miss):	•	•	-	or
.50 Caliber Engag	gements			
From target expos	sure to target supp	ression:	-	
Coax Engagements	-			
	ure to start of fi		.	
	re command to finis		ction:	
	acking to target a			
AIMING ERROR				· · · · · · · · · · · · · · · · · · ·
Dry Fire-Main Gur	<u>1</u>		First Round S	econd Round
	from center of mas	-	mils	mils
	rom center of mass from base of targe		mils mils	mils mils
	rom base of target		mils	mils
Live Fire-Main Gu	n, Coax, .50 Calib	er	Rounds	
Main Gun				
Coax				

ENGAGEMENT CATEGORY: 17

OBJECTIVE: 17B

		OBJE	JIIVE. 175	
		OWN TANK		
WEAPON MG +	TANK MOTION M +	TURRET STAB +		TROLS ER +
COAX .50 CAL	M + S	NONSTAB		UAL
FUNCTION	GPS TIS	LRF LEAD	CROSSWIND	CANT
MALFUNCTION	+ +	<u> </u>		+
		TARGET		
TGT MOTION	TGT NUMBER	RANG	<u>SE</u>	<u>VIS</u>
M + S +	SINGLE SIMUL MULT +	•	000) + V -3000) + V	IS IS/TIS <u>+</u>
		CRITERIA		
TIME (Seconds)				
Main Gun Engageme	ents			TC GNR
From start of fir	re command to fini	nitial fire commar sh of lay for dire mmo, lay, track, s	ction:	-
From Gunner "Not		lect ammo, lay, tr		:
From TC completion	on of lase to firs	t round fired:		
From first round miss):	impact to second	round fired (if fi	rst round	or
.50 Caliber Engag	gements			
From target expos	sure to target sup	pression:		
Coax Engagements	-			
From start of fin From Gunner "Iden	sure to start of f re command to fini ntify" to select c racking to target	sh of lay for dire oax, lay, track:	ction:	
AIMING ERROR				
Dry Fire-Main Gur	1		First Round	Second Round
Elevation error in Deflection error	from center of ma from center of mas from base of targe from base of targe	s (Precision): et (Battlesight):	mils mils mils mils	mils mils mils mils mils
Live Fire-Main Gu	ın, Coax, .50 Cali	ber	Rounds	
Main Gun Coax				
.50 Caliber	-			
	1	3-5 <i>2</i>		

ENGAGEMENT CATEGORY: 17

OBJECTIVE: 17C

		OWN TAI	NIK.		
WEAPON	TANK MOTION	Onn In	TURRET	C	ONTROLS
MG MG	M		STAB +	_	OWER +
COAX +	s <u>+</u>		NONSTAB		ANUAL
.50 CAL +					
	GPS TIS	LRF	LEAD	CROSSWIN	D CANT
FUNCTION	+ +		+	_+	
MALFUNCTION		+			
		TARGET	ŗ		
TGT MOTION	TGT NUMBER	<u>:</u>	RANGE		VIS
M <u>+</u> S +	Single		ŒD (500-150		VIS +
S ±	SIMUL + MULT	. 1	LONG (1501-3	000)	VIS/TIS
		CRITERI	Z.A.		
TIME (Seconds)					
Main Gun Engageme	nts				TC GN
	ure to start of i	nitial i	ire command	:	
From start of fir	e command to fini	sh of la	y for direc	tion:	
From Gunner "Iden From Gunner "Not	tify" to select a Identified" to se	mmo, lay lect amm	, track, an o. lav. tra	d lase: ck. and las	
From TC "Fire" to	first round fire	d:			
From TC completio From first round				st round	
miss):	Impact to become	100	.100 (11 111	oc round	or
.50 Caliber Engag	ements				
From target expos	ure to target sup	pression	\:		
Coax Engagements					
From target expos	ure to start of f:	ire comm	and:		
From start of fir				tion:	
From Gunner "Iden From finish of tr					
AIMING ERROR	-0-1	. ·			 -
Dry Fire-Main Gun				First Round	i Second Roun
Deflection error		ss (Prec	•	mils	mils
Elevation error f	rom center of mass	s (Preci	sion):	mils	mils
Deflection error Elevation error f				mils mils	mils mils
Live Fire-Main Gu	_	•	•	Rounds	mr.13

Main Gun Coax

.50 Caliber

ENGAGEMENT CATEGORY: 18

OBJECTIVE: 18A

OWN TANK						
WEAPON	TANK	MOTION		TURRET	CONT	ROLS
MG + COAX + .50 CAL	M S	+		STAB + NONSTAB	_ POWE	
	GPS	TIS	LRF	LEAD	CROSSWIND	CANT
FUNCTION MALFUNCTION	+	<u>±</u>	<u>+</u>	<u>+</u>	<u>+</u> -	<u>+</u>

TARGET						
M + s	TGT NUMBER SINGLE SIMUL MULT +	RANGE MED (500-1500) + LONG (1501-3000) +	VIS VIS VIS/TIS +			

CRITERIA

TIME (Seconds)			
Main Gun Engagements		TC	GNR
From target exposure to start of initial fire command. From start of fire command to finish of lay for dire From Gunner "Identify" to select ammo, lay, track, as From Gunner "Not Identified" to select ammo, lay, track,			
From TC "Fire" to first round fired: From TC completion of lase to first round fired: From first round impact to second round fired (if finises):	0:	r	
.50 Caliber Engagements			
From target exposure to target suppression:			
Coax Engagements			
From target exposure to start of fire command: From start of fire command to finish of lay for dire From Gunner "Identify" to select coax, lay, track: From finish of tracking to target suppression:			
AIMING ERROR			
Dry Fire-Main Gun	First Round	Second	Round
Deflection error from center of mass (Precision): Elevation error from center of mass (Precision): Deflection error from base of target (Battlesight): Elevation error from base of target (Battlesight):	mils mils mils mils mils		mils mils mils mils
Live Fire-Main Gun, Coax, .50 Caliber	Rounds		
Main Gun Coax .50 Caliber B-54			

ENGAGEMENT CATEGORY: 18

OBJECTIVE: 18B

		00020	,11,12, 132				
1		OWN TANK					
WEAPON MG + COAX .50 CAL +	TANK MOTION M + S	TURRET STAB + NONSTAB	POWE	ROLS R <u>1</u> AL			
FUNCTION MALFUNCTION	<u>GPS</u> <u>TIS</u> + +	<u>LRF</u> <u>LEAD</u> +	CROSSWIND +	<u>CANT</u>			
		TARGET					
TGT MOTION M + S	TGT NUMBER SINGLE SIMUL + MULT	RANG MED (500-15	_				
	CRITERIA						
TIME (Seconds)							
Main Gun Engagem	ents			TC GNR			
From start of fi From Gunner "Ide From Gunner "Not From TC "Fire" t From TC completi	re command to fini intify" to select a Identified" to se to first round fire on of lase to firs		ction: nd lase: ack, and lase:	or			
.50 Caliber Enga	gements						
From target expo	sure to target sup	pression:					
Coax Engagements	_						
From Start of fi From Gunner "Ide From finish of t	nure to start of f re command to fini intify" to select c racking to target	sh of lay for dire oax, lay, track:	ction:				
AIMING ERROR							
Dry Fire-Main Gu		(man . d . d)	First Round	Second Round			
Elevation error Deflection error	from center of ma from center of mas from base of targ from base of targe	s (Precision): get (Battlesight):	mils mils mils mils mils	mils mils mils mils			
Live Fire-Main G	un, Coax, .50 Cali	ber	Rounds				
Main Gun Coax 50 Caliber							

ENGAGEMENT CATEGORY: 18 OBJECTIVE: 18C

		OWN TANK		
WEAPON	TANK MOTION	TURRET	CON	TROLS
MG <u>+</u>	M + -	STAB +		ER +
COAX	s	NONSTAB	MAN	JAL
	GPS TIS	LRF LEAD	CROSSWIND	CANT
FUNCTION	GPS TIS +	LRF LEAD	+	+
MALFUNCTION	+ -	<u> </u>		<u> </u>
		TARGET		
TGT MOTION	TGT NUMBER	RANG	<u>SE</u>	VIS
M +	SINGLE _+	MED (500-15		is
s	SIMUL MULT	LONG (1501-	-3000) V	S/TIS _+
		CRITERIA		
TIME (Seconds)				
Main Gun Engageme	ents	<u> </u>		TC GNR
From start of fir From Gunner "Iden From Gunner "Not	sure to start of in re command to fini- ntify" to select an Identified" to se o first round fire	sh of lay for dire mmo, lay, track, a lect ammo, lay, tr	ction: ind lase:	
From TC completion	on of lase to firs impact to second	t round fired:	rst round	or
.50 Caliber Engag	gements			
From target expos	sure to target sup	pression:		4
Coax Engagements				
From start of fir From Gunner "Iden From finish of to	sure to start of fire command to finishing to select cracking to target	sh of lay for dire oax, lay, track:	ection:	
AIMING ERROR				
Dry Fire-Main Gur		4	First Round	Second Round
Elevation error in Deflection error	from center of ma from center of mas from base of targe from base of targe	s (Precision): et (Battlesight):	mils mils mils mils mils	mils mils mils mils mils
	un, Coax, .50 Cali	_	Rounds	
Main Gun				
Coax .50 Caliber			·	

TANK MOTION

WEAPON

MG

COAX .50 CAL

FUNCTION

MALFUNCTION

ENGAGEMENT CATEGORY: 19

OBJECTIVE: 19A

OWN TANK TURRET CONTROLS POWER + MANUAL STAB + NONSTAB STAB GPS TIS LRF LEAD CROSSWIND

	TA	RGET	
TGT MOTION M + S	TGT NUMBER SINGLE + SIMUL MULT	<u>RANGE</u> MED (500-1500) LONG (1501-3000)	VIS VIS VIS/TIS +

<u>+</u> <u>+</u>

CRITERIA

TIME (Seconds)			
Main Gun Engagements		TC	GNR
From target exposure to start of initial fire comman. From start of fire command to finish of lay for dire. From Gunner "Identify" to select ammo, lay, track, as			
From Gunner "Not Identified" to select ammo, lay, traffrom TC "Fire" to first round fired:	ack, and lase:		
From TC completion of lase to first round fired: From first round impact to second round fired (if firmiss):			
.50 Caliber Engagements		`.	
From targe: exposure to target suppression:			
Coax Engagements			
From target exposure to start of fire command: From start of fire command to finish of lay for direction Gunner "Identify" to select coax, lay, track: From finish of tracking to target suppression:	ction:		
AIMING ERROR			
Dry Fire-Main Gun	First Round	Second	Round
Deflection error from center of mass (Precision): Elevation error from center of mass (Precision): Deflection error from base of target (Battlesight): Elevation error from base of target (Battlesight):	mils mils mils mils mils		mils mils mils mils
Live Fire-Main Gun, Coax, .50 Caliber	Rounds		
Main Gun Coax .50 Caliber			
B-57			

-

ENGAGEMENT CATEGORY: 19

OR INCTIVE .

		OD3	ECTIVE: 19B	
1		OWN TANK	······································	
<u>WEAPON</u> MG +	TANK MOTION M +	TURRET STAB	 -	NTROLS VER +
COAX	s <u>+</u>	NONSTAB		WUAL
FUNCTION	GPS TIS	<u>LRF</u> <u>LEAD</u>	CROSSWIND	CANT
MALFUNCTION	<u>+</u> +	± ±	- 	_±
		TARGET		
TGT MOTION	TGT NUMBER		NGE	<u>vis</u>
M + S +	SINGLE SIMUL MULT +	MED (500- LONG (150		VIS
		CRITERIA		
TIME (Seconds)				
Main Gun Engageme	ents			TC GNR
From start of fin From Gunner "Ider From Gunner "Not From TC "Fire" to From TC completion	sure to start of increase command to finish the command to finish the command to select and the command firest round firest impact to second in the command to second in th	sh of lay for dinmo, lay, track, lect ammo, lay, di: round fired:	ection: and lase: crack, and lase	
.50 Caliber Engag	ements			
From target expos	sure to target supp	ression:		
Coax Engagements	_			
From start of fir From Gunner "Iden	sure to start of fi e command to finis ntify" to select co cacking to target s	sh of lay for dir bax, lay, track:	ection:	
AIMING ERROR				
Dry Fire-Main Gun	_	on (Dward of on)	First Round	Second Round
Elevation error f Deflection error	from center of mass rom center of mass from base of targe rom base of target	(Precision): t (Battlesight):	mils mils mils mils mils	mils mils mils mils mils
	m, Coax, .50 Calib	<u>er</u>	Rounds	
Main Gun Coax				
.50 Caliber				

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and the second s

TIME (Seconds)

ENGAGEMENT CATEGORY: 19

OBJECTIVE: 19C

OWN TANK							
WEAPON	TANK	MOTION		TURRET	CONTI	ROLS	
MG COAX + .50 CAL +			STAB + NONSTAB	POWEI MANUA			
	GPS	TIS	LRF	LEAD	CROSSWIND	CANT	
FUNCTION MALFUNCTION	+	+	+	+	_	+	

	T.	RGET	
TGT MOTION	TGT NUMBER	RANGE	VIS
s <u>+</u>	SINGLE SIMUL + MULT	MED (500-1500) + LONG (1501-3000)	VIS VIS/TIS

CRITERIA

Main Gun Engagements	TC GNR
From target exposure to start of initial fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select ammo, lay, track, and lase: From Gunner "Not Identified" to select ammo, lay, track, and lase: From TC "Fire" to first round fired: From TC completion of lase to first round fired: From first round impact to second round fired (if first round miss):	ase: or
.50 Caliber Engagements	
From target exposure to target suppression:	
Coax Engagements	
From target exposure to start of fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select coax, lay, track: From finish of tracking to target suppression:	
AIMING ERROR	
Dry Fire-Main Gun First Rous	nd Second Round
Deflection error from center of mass (Precision): Elevation error from center of mass (Precision): Deflection error from base of target (Battlesight): Elevation error from base of target (Battlesight): mile	mils mils
Live Fire-Main Gun, Coax, .50 Caliber Rounds	
Main Gun Coax .50 Caliber B-59	

ENGAGEMENT CATEGORY: 20

OBJECTIVE: 20A

		OWN TANK		
WEAPON	TANK MOTION	TURRET		TROLS
MG + COAX	d <u>+</u> s <u></u>	STAB NONSTAB		ER + UAL
FUNCTION MALFUNCTION	<u>GPS</u> <u>TIS</u> <u>+</u>	LRF LEAD + +	CROSSWIND	<u>CANT</u>
i		TARGET		
TGT MOTION	TGT NUMBER	RANC	<u>E</u>	VIS
M ±	SINGLE + SIMUL	MED (500-15 LONG (1501-	000) V 3000) V	IS IS/TIS
		CRITERIA		
TIME (Seconds)				
Main Gun Engageme	ents			TC GNR
From start of fin From Gunner "Ider From Gunner "Not From TC "Fire" to From TC completion	sure to start of increase command to finish the command to finish the command to select and Identified to select to first round first impact to second research.	sh of lay for dire mo, lay, track, a lect ammo, lay, tr l: round fired:	ction: nd lase: ack, and lase	
.50 Caliber Engag	gements			
From target expos	sure to target supp	ression:		
Coax Engagements	_			
From start of fir From Gunner "Iden	sure to start of fi re command to finis ntify" to select co racking to target s	h of lay for dire oax, lay, track:	ction:	
AIMING ERROR				
Dry Fire-Main Gun			First Round	Second Round
Elevation error f Deflection error	from center of mass from center of mass from base of targe from base of target	(Precision): et (Battlesight):	mils mils mils mils mils	mils mils mils mils mils
Live Fire-Main Gu	in, Coax, .50 Calib	er	Rounds	
Main Gun Coax .50 Caliber				

ENGAGEMENT CATEGORY: 20

OBJECTIVE: 20B

		OWN TANK		
WEAPON	TANK MOTION	TURRET	CON	TROLS
MG	M <u>+</u>	STAB		ER <u>+</u>
COAX +	s	NONSTAB _	MAN	UAL
	GPS TIS	<u>LRF</u> <u>LEAD</u>	CROSSWIND	CANT
FUNCTION MALFUNCTION	+ +	+ +	+	+
				
		mA DOEM		
TOT MOTTON	<i>ሞርሞ</i> እፕኬውድክ	TARGET	ICE	UTC
TGT MOTION	TGT NUMBER	· -	NGE	VIS
$\begin{array}{c} M + (Coax \\ S + (.50) \end{array}$		MED (500-1 LONG (1501		IS + IS/TIS
	MULT	•		
		CRITERIA		
TIME (Seconds)				
Main Gun Engageme	ents			TC GNR
	sure to start of i			
	re command to fini ntify" to select æ			
From Gunner "Not	Identified" to se	lect ammo, lay, t		·
	o first round fire on of lase to firs			
From first round	impact to second		irst round	
miss):				or
.50 Caliber Engag				
•	sure to target sup	pression:		
Coax Engagements	_			
	sure to start of fi re command to fini		ection:	
From Gunner "Iden	atify" to select c	oax, lay, track:		
	racking to target	suppression:		
AIMING ERROR				
Dry Fire-Main Gur		<i>(</i> 5	First Round	Second Round
	from center of mag from center of mass	•	mils mils	mils mils
Deflection error	from base of targe	et (Battlesight):	mils	mils
	from base of targe		mils	mils
·	ın, Coax, .50 Calil	ber	Rounds	
Main Gun Coax				
.50 Caliber				

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ENGAGEMENT CATEGORY: 20

OBJECTIVE: 20C

		OWN TANK			
WEAPON MG + COAX + .50 CAL	TANK MOTION M + S	TURRET STAB NONSTAB	CONT POWE MANU	R _+	
FUNCTION MALFUNCTION	<u>GPS</u> <u>TIS</u>	LRF LEAD	CROSSWIND _+_	<u>CANT</u>	
		TARGET			
TGT MOTION M + S	TGT NUMBER SINGLE SIMUL MULT +	<u>RANG</u> MED (500-15 LONG (1501-		VIS S S/TIS	
		CRITERIA			
TIME (Seconds)					
Main Gun Engagem			·	TC GNR	
From target exposure to start of initial fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select ammo, lay, track, and lase: From Gunner "Not Identified" to select ammo, lay, track, and lase: From TC "Fire" to first round fired:					
From TC completion	on of lase to first impact to second r	round fired:	rst round	or	
.50 Caliber Enga	gements				
	sure to target supp	ression:			
Coax Engagements	-				
From target expose From Start of fix From Gunner "Idea	ction:				

AIMING ERROR Dry Fire-Main Gun First Round Second Round Deflection error from center of mass (Precision): milsmils Elevation error from center of mass (Precision): mils mils Deflection error from base of target (Battlesight): milsmils Elevation error from base of target (Battlesight): mils mils Live Fire-Main Gun, Coax, .50 Caliber Rounds Main Gun Coax .50 Caliber

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From finish of tracking to target suppression:

ENGAGEMENT CATEGORY: 21

		OBJE	CIIVE: 21A	
		OWN TANK		
WEAPON	TANK MOTION	TURRET	CON	TROLS
MG _+ COAX	M _+_ S	STAB		ER +
	CPS TIS	LRF LEAD	CROSSWIND	CANT
FUNCTION MALFUNCTION	<u>+</u> <u>+</u>	<u> </u>	+	+
		TARGET		
TGT MOTION	TGT NUMBER		SE.	VIS
M + S	SINGLE	MED (500-15 LONG (1501-		IS IS/TIS +
	MULT +			
		CRITERIA		
TIME (Seconds)				
Main Gun Engageme	ents			TC GNR
From start of fir From Gunner "Ider From Gunner "Not From TC "Fire" to From TC completion	sure to start of in re command to finis atify" to select an Identified" to select of first round fired on of lase to first impact to second to	sh of lay for dire nmo, lay, track, a lect ammo, lay, tr i: c round fired:	ection: und lase: ack, and lase:	
.50 Caliber Engag	gements			
From target expos	sure to target supp	ression:		
Coax Engagements	-			
From start of fir From Gunner "Iden	sure to start of fi re command to finis ntify" to select co racking to target s	sh of lay for dire bax, lay, track:	ction:	
AIMING ERROR				
Dry Fire-Main Gur	1		First Round	Second Round
Elevation error in Deflection error	from center of mass from center of mass from base of target from base of target	(Precision): et (Battlesight):	mils mils mils mils	mils mils mils mils mils
Live Fire-Main Gu	in, Coax, .50 Calib	er	Rounds	
Main Gun Coax .50 Caliber				

ENGAGEMENT CATEGORY: 21

OBJECTIVE: 21B

			OBJECTIVE: 21	B
		OWN TANK		
WEAPON MG + COAX .50 CAL	TANK MOTION M + S	TUR STAB NONS		CONTROLS POWER + MANUAL
FUNCTION MALFUNCTION	GPS TIS		EAD CROSS +	<u>+</u>
		TARGET		
TGT MOTION M + S	TGT NUMBER SINGLE + SIMUL MULT	MED (RANGE 500-1500) (1501-3000) +	VIS VIS VIS/TIS +
		CRITERIA		
TIME (Seconds)				
From start of fir From Gunner "Iden From Gunner "Not From TC "Fire" to From TC completion	sure to start of increase command to finite attify" to select and Identified" to select first round fire on of lase to first impact to second	sh of lay for mmo, lay, tra lect ammo, la d: t round fired	r direction: ack, and lase: ay, track, and	
.50 Caliber Engag				
-	sure to target supp	pression:		
From start of fir From Gunner "Iden	sure to start of fire command to finishing to select conditions to target se	sh of lay for bax, lay, tra		
Dry Fire-Main Gur	1		First Ro	ound Second Round
Elevation error in Deflection error	from center of mass from center of mass from base of targe from base of target	s (Precision) et (Battlesig	n): mi : mi ght): mi	ls mils ls mils ls mils ls mils
Live Fire-Main Gu	ın, Coax, .50 Calit	er	Rounds	
Main Gun Coax .50 Caliber	_			

ENGAGEMENT CATEGORY: 21

OBJECTIVE: 21C

OWN TANK							
WEAPON	TANK	MOTION		TURRET	CONT	ROLS	
MG COAX + .50 CAL +	M + S			STAB + NONSTAB	POWEI MANUA		
	GPS	TIS	LRF	LEAD	CROSSWIND	CANT	
FUNCTION MALFUNCTION	+	<u>+</u>	+	+	+	+	

TARGET								
M + (.50 Cal)	SINGLE SIMUL +	RANGE MED (500-1509) + LONG (1501-3000)	VIS VIS/TIS +					

CRITERIA

TIME (Seconds)			
Main Gun Engagements		TC	GNR
From target exposure to start of initial fire comman From start of fire command to finish of lay for dire From Gunner "Identify" to select ammo, lay, track, a From Gunner "Not Identified" to select ammo, lay, tr From TC "Fire" to first round fired: From TC completion of lase to first round fired: From first round impact to second round fired (if fi miss): .50 Caliber Engagements	or		
From target exposure to target suppression:			
Coax Engagements			
From target exposure to start of fire command: From start of fire command to finish of lay for dire From Gunner "Identify" to select coax, lay, track: From finish of tracking to target suppression:			
AIMING ERROR			
Dry Fire-Main Gun	First Round	Second	Round
Deflection error from center of mass (Precision): Elevation error from center of mass (Precision): Deflection error from base of target (Battlesight): Elevation error from base of target (Battlesight):	mils mils mils mils mils		mils mils mils mils
Live Fire-Main Gun, Coax, .50 Caliber	Rounds		
Main Gun Coax .50 Caliber B-65			

ENGAGEMENT CATEGORY: 22

OBJECTIVE: 22A						
		OWN TANK				
WEAPON	TANK MOTION	TURRET	CON	TROLS		
MG + COAX	s <u>+</u>	STAB NONSTAB		ER + UAL		
FUNCTION MALFUNCTION	GPS TIS + +	LRF LEAD + +	CROSSWIND +	<u>+</u>		
		TARGET				
TGT MOTION M + S	TGT NUMBER SINGLE + SIMUL MULT	<u>RA</u> MED (500-	NGE -1500)V -1-3000)V	VIS IS + IS/TIS -		
		CRITERIA				
TIME (Seconds)						
Main Gun Engageme	ents			TC GNR		
From target exposure to start of initial fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select ammo, lay, track, and lase: From Gunner "Not Identified" to select ammo, lay, track, and lase: From TC "Fire" to first round fired: From TC completion of lase to first round fired: From first round impact to second round fired (if first round miss):						
.50 Caliber Engag	gements					
From target expos	sure to target supp	ression:				
Coax Engagements	_					
From start of fir From Gunner "Iden	sure to start of fi re command to finis ntify" to select co racking to target s	sh of lay for di bax, lay, track:				
AIMING ERROR						
Dry Fire-Main Gur	1_		First Round	Second Round		
Elevation error for Deflection error	from center of mass from center of mass from base of targe from base of target	(Precision): et (Battlesight)	mils mils mils mils	mils mils mils mils mils		
Live Fire-Main Gu	in, Coax, .50 Calib	er	Rounds			
Main Gun Coax .50 Caliber						

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ENGAGEMENT CATEGORY: 22

OBJECTIVE: 22B

OWN TANK							
WEAPON	TANK MOTION	TURRET	CON	TROLS			
MG + COAX + .50 CAL	M <u>+</u> S	STAB NONSTAB	± POW MAN	ER + UAL			
FUNCTION MALFUNCTION	<u>CPS</u> <u>TIS</u>	<u>LRF LEAD</u> + +	CROSSWIND +	CANT _+			
		<u> </u>					
		TARGET					
TGT MOTION	TGT NUMBER	RAN	GE	VIS			
M + S	SINGLE SIMUL MULT +		500) <u>+</u> V -3000) <u>+</u> V	IS <u>+</u> IS/TIS <u>—</u>			
CRITERIA							
TIME (Seconds)	· · · · · · · · · · · · · · · · · · ·						
Main Gun Engagem	ents			TC GNR			
From target exposure to start of initial fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select ammo, lay, track, and lase: From Gunner "Not Identified" to select ammo, lay, track, and lase: From TC "Fire" to first round fired: From TC completion of lase to first round fired: From first round impact to second round fired (if first round miss):							
.50 Caliber Engag							
Coax Engagements	sure to target sup	pression:					
From target expose From Start of fir From Gunner "Iden From finish of the From From From From From From From From	Sure to start of fire command to finitional firm to select cracking to target	sh of lay for dire	ection:				
AIMING ERROR							
Elevation error in Elevation error	from center of mass from center of mass from base of targe from base of targe	s (Precision): et (Battlesight): t (Battlesight):	First Round mils mils mils mils mils	Second Round mils mils mils mils mils			
Live Fire-Main G	ın, Coax, .50 Cali	<u>ber</u>	Rounds				
Main Gun Coax .50 Caliber							

ENGAGEMENT CATEGORY: 22

	OBJECTIVE: 22C						
		OWN TANK					
WEAPON	TANK MOTION	TURRET	CON	TROLS			
MG + COAX +	M <u>+</u> S	STABNONSTAB	POWI MANU				
FUNCTION MALFUNCTION	<u>GPS</u> <u>TIS</u> <u>+</u> <u>+</u>	LRF LEAD + +	CROSSWIND+_	<u>CANT</u> _+			
		TARGET					
TGT MOTION M + S + (.50 (TGT NUMBER SINGLE SIMUL + MULT	MED (500-15	00) <u>+</u> VI	VIS S S/TIS			
CRITERIA							
TIME (Seconds)			······································				
Main Gun Engagem	ents			TC GNR			
From target exposure to start of initial fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select ammo, lay, track, and lase: From Gunner "Not Identified" to select ammo, lay, track, and lase: From TC "Fire" to first round fired: From TC completion of lase to first round fired: From first round impact to second round fired (if first round miss):							
.50 Caliber Enga	gements						
	sure to target sup	pression:					
From start of fir From Gunner "Ide From finish of t	ure to start of fire command to finishing to select coracking to target a	sh of lay for dire oax, lay, track:	ction:				
AIMING ERROR							
Elevation error : Deflection error	from center of mag from center of mass from base of targe from base of target	(Precision): et (Battlesight):	First Round mils mils mils mils mils	Second Round mils mils mils mils mils			
Live Fire-Main G	un, Coax, .50 Calil	<u>per</u>	Rounds				
Main Gun Coax							

ENGAGEMENT CATEGORY: 23

OBJECTIVE: 23A

OWN TANK							
WEAPON	TANK	MOTION		TURRET	CONT	ROLS	
MG COAX .50 CAL	M + S			STAB + POW NONSTAB MAN			
	GPS	TIS	LRF	LEAD	CROSSWIND	CANT	
FUNCTION MALFUNCTION	+	<u>+</u> .	主	<u>+</u>	<u>+</u>	+	

	TARG	ET	
 M + + + + + + + + + + + + + + + + + + +	TGT NUMBER SINGLE SIMUL + MULT	RANGE MED (500-1500) ± LONG (1501-3000) ±	VIS VIS VIS/TIS

CRITERIA

TIME (Seconds)			
Main Gun Engagements		TC	GNR
From target exposure to start of initial fire comman From start of fire command to finish of lay for dire From Gunner "Identify" to select ammo, lay, track, a From Gunner "Not Identified" to select ammo, lay, tr From TC "Fire" to first round fired: From TC completion of lase to first round fired: From first round impact to second round fired (if finise):			
.50 Caliber Engagements			
From target exposure to target suppression:			
Coax Engagements			
From target exposure to start of lire command: From start of fire command to finish of lay for dire From Gunner "Identify" to select coax, lay, track: From finish of tracking to target suppression:			
AIMING ERROR			
Dry Fire-Main Gun	First Round	Second	Round
Deflection error from center of mass (Precision): Elevation error from center of mass (Precision): Deflection error from base of target (Battlesight): Elevation error from base of target (Battlesight):	mils mils mils mils mils		mils mils mils mils
Live Fire-Main Gun, Coax, .50 Caliber	Rounds		
Main Gun Coax .50 Caliber B-69			

ENGAGEMENT CATEGORY: 23

OBJECTIVE: 23B

T							
		OWN	TANK				
WEAPON	TANK MO	TION	TURRET	CO	NTROLS		
MG +	M +	•	STAB +	_	VER +		
COAX .50 CAL	8	•	NONSTAB	_ MAI	NUAL		
	en.				6 		
		TIS LRF	· 	CROSSWIND	CANT		
FUNCTION MALFUNCTION	<u>+</u> .	<u>+</u> _+	+	<u>+</u>	<u>+</u>		
		TAR	GET				
TGT MOTION	TGT	NUMBER	RANGE	2	VIS		
M +	SIN	GLE +	MED (500-150	(0)	/IS		
s	SIM MUL		LONG (1501-3	1 (0000)	/IS/TIS +		
	riol.	·					
CRITERIA							
TIME (Seconds)				_			
Main Gun Engagem	ents				TC GNR		
From target expor	re command	to finish of	lay for direc	tion:			
From Gunner "Iden From Gunner "Not							
From TC "Fire" to			ammo, lay, tra	ick, and lase	·		
From TC completion							
From first round miss):	impact to	second round	fired (if fir	st round	or		
.50 Caliber Engage	gements						
From target expo		get suppress	ion:				
Coax Engagements					-		
From target expos				tion:			
From Gunner "Iden From finish of to	ntify" to s	elect coax,	lay, track:				
AIMING ERROR							
Dry Fire-Main Gu	<u>n</u>			First Round	Second Round		
Deflection error Elevation error Deflection error Elevation error	from center from base	of mass (Pr of target (B	ecision): attlesight):	mils mils mils mils mils	mils mils mils mils		
Live Fire-Main G	un, Coax,	50 Caliber		Rounds			
Main Gun		- · · · - -					
Coax							
.50 Caliber		B_70					

ENGAGEMENT CATEGORY: 23

OBJECTIVE: 23C

OWN TANK								
WEAPON	TANK	MOTION		TURRET	CONT	ROLS		
MG + COAX + .50 CAL	M + S			STAB + POWE MANU				
	GPS	TIS	LRF	LEAD	CROSSWIND	CANT		
FUNCTION MALFUNCTION	<u>+</u>	<u>+</u>	+	<u>+</u>	<u>+</u> 	<u>+</u> -		

	TA	RGET	
TGT MOTION M + s	TGT NUMBER SINGLE SIMUL MULT +	RANGE MED (500~1500) LONG (1501-3000)	VIS VIS VIS/TIS +

CRITERIA

TIME (Seconds)	
Main Gun Engagements	TC GNR
From target exposure to start of initial fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select ammo, lay, track, and lase: From Gunner "Not Identified" to select ammo, lay, track, and From TC "Fire" to first round fired: From TC completion of lase to first round fired: From first round impact to second round fired (if first round miss):	lase:
.50 Caliber Engagements	
From target exposure to target suppression:	
Coax Engagements	
From target exposure to start of fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select coax, lay, track: From finish of tracking to target suppression:	
AIMING ERROR	
Dry Fire-Main Gun First F	tound Second Round
Elevation error from center of mass (Precision): Deflection error from base of target (Battlesight):	mils mils ils mils mils mils mils mils
Live Fire-Main Gun, Coax, .50 Caliber Rounds	
Main Gun Coax .50 Caliber B-71	

ENGAGEMENT CATEGORY: 24

OBJECTIVE: 24A

						
		OWN TANK				
WEAPON	TANK MOTION		TURRET	-	CONTROLS	
MG + COAX - .50 CAL -	s <u>+</u>	_	TAB ± ONSTAB		POWER ±	
	<u>GPS</u> <u>TIS</u>	LRF	LEAD	CROSSWII	ND CA	NT
FUNCTION MALFUNCTION	+ -	<u> </u>	<u>+</u> —			<u>+</u> _
		TARGET				
TGT MOTION	TGT NUMBER	₹	RANGE		VIS	
M <u>+</u> s <u></u>	SINGLE SIMUL MULT +	Lo	D (500-1500 NG (1501-30		VIS VIS/TIS	+
		CRITERIA				
TIME (Seconds)						······································
Main Gun Engageme	ents	 			TC	GNR
From target exposure to start of initial fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select ammo, lay, track, and lase: From Gunner "Not Identified" to select ammo, lay, track, and lase: From TC "Fire" to first round fired: From TC completion of lase to first round fired: From first round impact to second round fired (if first round						
.50 Caliber Engag	ements					
From target expos	ure to target sup	pression:				
Coax Engagements	•					
From target exposure to start of fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select coax, lay, track: From finish of tracking to target suppression:						
AIMING ERROR	· · · · · · · · · · · · · · · · · · ·					
Dry Fire-Main Gun			_	irst Roun	d Second	Round
		s (Precisi et (Battle	lon): esight):	mils mils mils mils mils		mils mils mils mils
Live Fire-Main Gu	n, Coax, .50 Cali	ber	<u>R</u>	lounds		
Main Gun Coax .50 Caliber						

ENGAGEMENT CATEGORY: 24

OBJECTIVE: 24B

OWN TANK					
WEAPON MG + COAX .50 CAL	TANK MOTION M + S	TURRET STAB NONSTAB	POW	TROLS ER + UAL	
FUNCTION MALFUNCTION	GPS TIS + +	<u>LRF</u> <u>LEAD</u>	CROSSWIND	<u>CANT</u> _+	
		TARGET			
TGT MOTION M S +	TGT NUMBER SINGLE + SIMUL MULT	MED (500-15		VIS IS IS/TIS +	
		CRITERIA			
From start of fi From Gunner "Ide From Gunner "Not From TC "Fire" t From TC completi From first round miss): .50 Caliber Enga From target expo Coax Engagements From target expo From start of fi From Gunner "Ide	sure to start of in re command to finis ntify" to select an Identified" to select of first round fired on of lase to first impact to second of gements	sh of lay for dire mmo, lay, track, a lect ammo, lay, tr d: t round fired: round fired (if fi pression: ire command: sh of lay for dire oax, lay, track:	ction: nd lase: ack, and lase rst round	or	
Elevation error Deflection error Elevation error	from center of mas from center of mass from base of targe from base of targe	s (Precision): et (Battlesight): t (Battlesight):	First Round mils mils mils mils	Second Round mils mils mils mils mils	
Live Fire-Main G Main Gun Coax .50 Caliber	un, Coaxí .50 Calil	<u>ber</u>	Rounds		

ENGAGEMENT CATEGORY: 24

OBJECTIVE: 24C

		V 20 2	240	
		OWN TANK		
WEAPON	TANK MOTION	TURRET	CON	TROLS
MG	M <u>+</u> S	STAB	+ POW	
COAX +	s <u> </u>	NONSTAB	MAN	ual
i I	GPS TIS	LRF LEAD	CROSSWIND	CANT
FUNCTION		LRF LEAD	CROSSWIND	CANT
MALFUNCTION	<u>+</u> <u>+</u>	<u>+</u> <u>-</u>	 _	<u>+</u>
		TARGET		
TGT MOTION	TGT NUMBER	RANC	E	VIS
M + S +	SINGLE	MED (500-15		IS
3 +	SIMUL + MULT	LONG (1501-	·3000) v.	IS/TIS +
L:				
		CRITERIA		
TIME (Seconds)				
Main Gun Engageme	ents			TC GNR
	sure to start of in			
From Gunner "Iden	re command to finis	mo, lay, track, a	nd lase:	
From Gunner "Not	Identified" to selection first round fired	lect ammo, lay, tr	ack, and lase	
From TC completion	on of lase to first	round fired:		
From first round miss):	impact to second	round fired (if fi	rst round	or
.50 Caliber Engag	gements			
	sure to target supp	ression:		
Coax Engagements	_			
	sure to start of fi			
	re command to finis atify" to select co		ction:	
	acking to target s			
AIMING ERROR				
Dry Fire-Main Gun	<u>. </u>		First Round	Second Round
	from center of mass		mils	mils
Deflection error	from base of targe	t (Battlesight):	mils	mils
	rom base of target		mils	mils
	in, Coax, .50 Calib	<u>er</u>	Rounds	
Main Gun Coax				
.50 Caliber				

FIRE DELIVERY METHOD: Normal Battlesight ENGAGEMENT CATEGORY: 25

		OBJEC	TIVE: 25A	
		OWN TANK		
WEAPON	TANK MOTION	TURRET	CONT	TROLS
MG +	M +	STAB _+		ER <u>+</u>
COAX .50 CAL +	s	NONSTAB	MANI	JAL
.30 0111				
	GPS TIS	<u>LRF</u> <u>LEAD</u>	CROSSWIND	CANT
FUNCTION MALFUNCTION	+ +	+ +	<u>+</u>	+
				
		TARGET		
TGT MOTION	TGT NUMBER	RANG	E	VIS
		MED (500-15	-	 [S _+_
$\begin{array}{c} M + \\ S + (.50) \end{array}$	Cal) SIMUL +	LONG (1501-	3000) + VI	S/TIS
	MULT	· .		
		CRITERIA		
TIME (Seconds)				
Main Gun Engager	nents			TC GI
	sure to start of i			
	ire command to fini entify" to select a			
From Gunner "Not	t Identified" to se	lect ammo, lay, tr		
	to first round fire ion of lase to firs			
From first round miss):	d impact to second	round fired (if fi	rst round	or
.50 Caliber Enga	acomente			~_
	osure to target sup	pression:		
Coax Engagements				
	sure to start of f	ire command:		
From start of fi	ire command to fini	sh of lay for dire	ction:	
	entify" to select c cracking to target			
AIMING ERROR				
Dry Fire-Main G	un		First Round	Second Rou
-	r from center of ma	•	mils	mils
	from center of mas r from base of targ		mils mils	mil:
	from base of targe		mils	mil:
Live Fire-Main	Gun, Coax, .50 Cali	<u>ber</u>	Rounds	
Main Gun				
Coax .50 Caliber				

ENGAGEMENT CATEGORY: 25

OBJECTIVE: 25B

!		OWN TANK				
WEAPON	TANK MOTION	-	TURRET	<u>c</u>	CONTROLS	
MG + COAX	M + S	-	TAB + ONSTAB	•	OWER +	: : :
	GPS TIS	LRF	LEAD	CROSSWIN	D CAN	T
FUNCTION MALFUNCTION	<u>+</u> <u>+</u>	+	<u>+</u>	± 		<u>-</u>
		TARGET				
TGT MOTION	TGT NUMBER		RANGE		vis	
M <u>+</u>	SINGLE + SIMUL MULT		D (500-150 NG (1501-3	0)	VIS VIS/TIS	:- -
		CRITERIA				
TIME (Seconds)						
Main Gun Engageme	ents				TC	GNR
From start of fir From Gunner "Ider From Gunner "Not From TC "Fire" to From TC completion	sure to start of in re command to fini atify" to select a Identified" to se of irst round fire on of lase to firs impact to second	sh of lay mmo, lay, elect ammo ed: at round fi	for direc track, an , lay, tra ired:	tion: d lase: ck, and la		r
.50 Caliber Engag	gements					
From target expos	sure to target sup	pression:				
Coax Engagements	~					
From start of fir From Gunner "Iden From finish of tr	sure to start of f re command to fini atify" to select o racking to target	sh of lay oax, lay,	for direc track:	tion:		
AIMING ERROR						
Dry Fire-Main Gu	_	. -		First Roun		Round
Elevation error beflection error	from center of mas from center of mas from base of targ from base of targe	s (Precis: et (Battle	ion): esight):	mils mils mils mils mils		mils mils mils mils
Live Fire-Main Gu	un, Coax, .50 Cali	ber	;	Rounds		
Main Gun Coax .50 Caliber						

FIRE DELIVERY METHOD: Normal Battlesight ENGAGEMENT CATEGORY: 25

	OBJECTIVE: 25C			
· · · · · · · · · · · · · · · · · · ·		OWN TANK		
WEAPON	TANK MOTION	TURRET	CON	TROLS
MG + COAX + .50 CAL	s <u>+</u>	STAB NONSTAB	+ POW MAN	ER + UAL
	GPS TIS	<u>LRF</u> <u>LEAD</u>	CROSSWIND	CANT
FUNCTION MALFUNCTION	<u>+</u> <u>+</u>	<u>+</u> <u>+</u>	_±	<u>+</u>
		TARGET		
TGT MOTION	TGT NUMBER		<u>GE</u>	vis
M <u>+</u> S	SINGLE SIMUL HULT +			IS IS/TIS +
	•	CRITERIA		
TIME (Seconds)				
Main Gun Engagen	oents			TC GNR
From start of fi From Gunner "Ide From Gunner "Not From TC "Fire" t From TC completi	ssure to start of interesting to select a select	ish of lay for dirammo, lay, track, alect ammo, lay, tod: st round fired:	ection: and lase: rack, and lase	: or
.50 Caliber Enga	agements			
From target expo	sure to target sup	pression:		
Coax Engagements	<u> </u>			
From Start of fi From Gunner "Ide	sure to start of f tre command to fini entify" to select or cracking to target	ish of lay for direcoax, lay, track:	ection:	
AIMING ERROR				
Dry Fire-Main Gu		_	First Round	Second Round
Elevation error Deflection error	from center of mag from center of mag from base of targ from base of targe	ss (Precision): get (Battlesight):	mils mils mils mils mils	mils mils mils mils
Live Fire-Main (Gun, Coax, .50 Cali	lber	Rounds	
Main Gun Coax				
.50 Caliber			_	

TIME (Seconds)

ENGAGEMENT CATEGORY: 26

OBJECTIVE: 26A

OWN TANK						
WEAPON	TANK	MOTION		TURRET	CONT	ROLS
MG + COAX .50 CAL	M S	+		STAB + NONSTAB	POWE MANU	
	GPS	TIS	LRF	LEAD	CROSSWIND	CANT
FUNCTION MALFUNCTION	<u>+</u>	<u>+</u>	+	+	<u>+</u>	<u>.+</u>

	TA	RGET	
TGT MOTION M ± S	TGT NUMBER SINGLE + SIMUL MULT	RANGE MED (500-1500) LONG (1501-3000) ±	VIS VIS VIS/TIS +

CRITERIA

Main Gun Engagements	TC	GNR
From target exposure to start of initial fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select ammo, lay, track, and lase: From Gunner "Not Identified" to select ammo, lay, track, and lase From TC "Fire" to first round fired: From TC completion of lase to first round fired: From first round impact to second round fired (if first round miss):		
.50 Caliber Engagements		
From target exposure to target suppression:		
Coax Engagements		
From target exposure to start of fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select coax, lay, track: From finish of tracking to target suppression:	***************************************	
AIMING ERROR		
Dry Fire-Main Gun First Round	Second	Round
Deflection error from center of mass (Precision): mils Elevation error from center of mass (Precision): mils Deflection error from base of target (Battlesight): mils Elevation error from base of target (Battlesight): mils		mils mils mils mils
Live Fire-Main Gun, Coax, .50 Caliber Rounds		
Main Gun Coax .50 Caliber B-78		

ENGAGEMENT CATEGORY: 26

OBJECTIVE: 26B

OWN TANK						
WEAPON	TANK MOTION	TURRET	CON	TROLS		
MG + COAX	м <u>+</u> s <u>—</u>	STAB ± NONSTAB _	POW.	ER		
FUNCTION MALFUNCTION	<u>GPS</u> <u>TIS</u> <u>+</u> <u>+</u>	LRF LEAD + +	CROSSWIND +	CANT _+		
		TARGET				
TGT MOTION	TGT NUMBER	RANG	<u>SE</u>	VIS		
M _+_ S	SINGLE SIMUL MULT	MED (500-19 LONG (1501-		IS		
		CRITERIA				
TIME (Seconds)						
Main Gun Engageme	ents			TC GNR		
From start of fir From Gunner "Iden From Gunner "Not From TC "Fire" to From TC completion From first round miss):	From target exposure to start of initial fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select ammo, lay, track, and lase: From Gunner "Not Identified" to select ammo, lay, track, and lase: From TC "Fire" to first round fired: From TC completion of lase to first round fired: From first round impact to second round fired (if first round miss):					
.50 Caliber Engag						
-	sure to target sup	pression:		******		
Coax Engagements From target exposure to start of fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select coax, lay, track: From finish of tracking to target suppression: AIMING ERROR						
Dry Fire-Main Gun			First Round	Second Round		
Elevation error f Deflection error	from center of mass rom center of mass from base of targe rom base of targe	s (Precision): et (Battlesight):	mils mils mils mils mils	mils mils mils mils mils		
Live Fire-Main Gu	n, Coax, .50 Calil	oer	Rounds			
Main Gun Coax .50 Caliber	_	. =0				

ENGAGEMENT CATEGORY:

26

OBJECTIVE: 26C

OWN TANK					
WEAPON MG COAX +	TANK MOTION M + S	<u>TURRET</u> STAB <u>+</u> NONSTAB		TROLS ER + JAL	
.50 CAL +					
FUNCTION	GPS TIS	LRF LEAD	CROSSWIND	CANT	
MALFUNCTION	<u>+</u> <u>+</u>	<u> </u>	<u> </u>		
		TARGET			
TGT MOTION	TGT NUMBER	RANG	<u>GE</u>	VIS	
M <u>+</u> S <u>+</u> (.50 (SINGLE	MED (500-1) LONG (1501-	500) ± V7 -3000) V7	IS IS/TIS	
		CRITERIA			
TIME (Seconds)					
Main Gun Engageme	ents			TC GNR	
From start of fir From Gunner "Ider From Gunner "Not From TC "Fire" to From TC completion	From target exposure to start of initial fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select ammo, lay, track, and lase: From Gunner "Not Identified" to select ammo, lay, track, and lase: From TC "Fire" to first round fired: From TC completion of lase to first round fired: From first round impact to second round fired (if first round miss):				
.50 Caliber Engag	gements_				
_	sure to target sup	pression:			
Coax Engagements	_				
From start of fir From Gunner "Iden	sure to start of f re command to fini ntify" to select c racking to target	sh of lay for dire oax, lay, track:	ection:		
AIMING ERROR					
Dry Fire-Main Gu			First Round	Second Round	
Elevation error : Deflection error	from center of ma from center of mas from base of targ from base of targe	s (Precision): et (Battlesight):	mils mils mils mils mils	mils mils mils mils	
Live Fire-Main G	un, Coax, .50 Cali	ber	Rounds		
Main Gun Coax					
.50 Caliber					

B-80

FIRE DELIVERY METHOD: Emergency Precision ENGAGEMENT CATEGORY: 27

	top: Emergency Fre		CTIVE: 27A	
OWN TANK				
WEAPON	TANK MOTION	TURRET	CON	TROLS
NG +	M	STAB		ER <u>+</u>
COAX .50 CAL	s <u>+</u>	NONSTAB	MAN MAN	UAL
	GPS TIS	LRF LEAD	CROSSWIND	CANT
FUNCTION	+ +		+	+
MALFUNCTION		\pm \pm		
		TARGET		
TGT MOTION	TGT NUMBER	·	_	<u>VIS</u>
M +	SINGLE + SIMUL	MED (500-19 LONG (1501-		IS IS/TIS
	MULT	20110 (2202	, <u></u> .	
				
		CRITERIA		
TIME (Seconds)				
Main Gun Engageme	ents			TC GNR
From start of fir From Gunner "Ider From Gunner "Not From TC "Fire" to From TC completion From first round	sure to start of in re command to finish tify" to select an Identified" to select and of first round fire on of lase to first impact to second	sh of lay for dirented in the second of the	ection: and lase: cack, and lase	:
miss): .50 Caliber Engag	remonte			<i>OX</i>
	sure to target sup	pression:		
Coax Engagements				
From target exposers of figure 5 from Gunner "Idea	sure to start of fi re command to fini ntify" to select co racking to target	sh of lay f <mark>or dire</mark> oax, lay, track:	ection:	
AIMING ERROR				
Dry Fire-Main Gu			First Pound	Second Round
Deflection error from center of mass (Precision): Elevation error from center of mass (Precision): Deflection error from base of target (Battlesight): Elevation error from base of target (Battlesight):				mils mils mils mils mils
Live Fire-Main G	ın, Coax, .50 Cali	ber	Rounds	
Main Gun				
Coax .50 Caliber	-	. 01		
	1	3-81		

B-81

ENGAGEMENT CATEGORY: 27

		ODJE	CTIVE: 27B	
		OWN TANK		
WEAPON	TANK MOTION	TURRET	CON	TROLS
MG <u>+</u>	M	STAB		ER <u>+</u>
COAX +	s +	NONSTAB +	MAN	UAL
	CPS TIS	LRF LEAD	CROSSWIND	CANT
FUNCTION	± ±		+	+
MALFUNCTION		- -		
		TARGET		
TGT MOTION	TGT NUMBER		GE	vis
	SINGLE	Mrn (500-1	 500)	IS +
M + S	SIMUL H	LONG (1501-		IS/TIS
	MULI <u>+</u>	•		
		CRITERIA		
TIME (Seconds)				
Main Gun Engagem	ents			TÇ GNR
From start of fi From Gunner "Ide From Gunner "Not From TC "Fire" t From TC completion	sure to start of in re command to finintify" to select a Identified" to se o first round fire on of lase to firs impact to second	sh of lay for dire mmo, lay, track, a clect ammo, lay, to cd: t round fired:	ection: and lase: rack, and lase	- or _
.50 Caliber Enga	gements			
From target expo	sure to target sup	pression:		
Coax Engagements	_			
From start of fi From Gunner "Ide	sure to start of f re command to fini ntify" to select o racking to target	sh of lay for dire	ection:	
AIMING ERROR				
Dry Fire-Main Gu	<u>n</u>		First Round	Second Round
Elevation error Deflection error	from center of mas from center of mas from base of targ from base of targe	s (Precision): et (Battlesight):	mils mils mils mils	mils mils mils mils mils
Live Fire-Main G	un, Coax, .50 Cali	ber	Rounds	
Main Gun Coax				
.50 Caliber				

ENGAGEMENT CATEGORY: 27
OBJECTIVE: 27C

OBJEC	CTIVE: 27C
OWN TANK	
WEAPON TANK MOTION TURRET MG + M STAB COAX S + NONSTAB + .50 CAL + - NONSTAB +	CONTROLS POWER + MANUAL
GPS TIS LRF LEAD FUNCTION + + + MALFUNCTION - + +	CROSSWIND CANT + +
TARGET	
TGT MOTION TGT NUMBER RANG M + SINGLE MED (500-15 S + (.50 Cal) SIMUL + LONG (1501-MULT	500) + VIS +
CRITERIA	
Main Gun Engagements From target exposure to start of initial fire comman From start of fire command to finish of lay for dire From Gunner "Identify" to select ammo, lay, track, a From Gunner "Not Identified" to select ammo, lay, tr From TC "Fire" to first round fired: From TC completion of lase to first round fired: From first round impact to second round fired (if fi miss): .50 Caliber Engagements From target exposure to target suppression: Coax Engagements From target exposure to start of fire command: From start of fire command to finish of lay for dire From Gunner "Identify" to select coax, lay, track: From finish of tracking to target suppression: AIMING ERROR	ection: and lase: rack, and lase: .rst round or
Dry Fire-Main Gun Deflection error from center of mass (Precision): Elevation error from center of mass (Precision): Deflection error from base of target (Battlesight):	First Round Second Round mils mils mils mils mils mils mils
Elevation error from base of target (Battlesight): Live Fire-Main Gun, Coax, .50 Caliber Main Gun Coax .50 Caliber	mils mils Rounds

ENGAGEMENT CATEGORY: 28

		OBJE	CTIVE: 28A	
		OWN TANK		
WEAPON	TANK MOTION	TURRET	CON	TROLS
MG +	M	STAB _		er <u>+</u>
.50 CAL	S <u>+</u>	Nonstab +	MAN	UAL
	GPS TIS	LRF LEAD	CROSSWIND	CANT
FUNCTION MALFUNCTION	<u>_</u>	+ +	+_	+
MALFUNCTION	+	<u> </u>		
		TARGET		
TGT MOTION	TCT NUMBER		GE	vis
M +	SINGLE	MED (500-1		IS
s	SIMUL	LONG (1501-	-3000) + V	IS/TIS +
	H081 <u>+</u>			
		CRITERIA		
TIME (Seconds)				
Main Gun Engagem	ents			TC GNR
From start of fi	sure to start of in re command to finis	sh of lay for dire	ection:	
	ntify" to select an Identified" to sel			
From TC "Fire" to	o first round fired	1:	ack, did rase	•
	on of lase to first impact to second i		irst round	
miss):	impact to occord i			or
.50 Caliber Enga	gements			
From target expos	sure to target supp	ression:		
Coax Engagements	_			
	sure to start of fi re command to finis		attan.	
	ntify" to select co		ecton:	
From finish of t	racking to target s	suppression:		
AIMING ERROR				
Dry Fire-Main Gu			First Round	Second Round
	from center of mass	-	mils	mils
Deflection error	from base of targe	et (Battlesight):	mils	mils
	from base of target	-	mils	mils
	un, Coax, .50 Calib	<u>per</u>	Rounds	
Main Gun Coax				
.50 Caliber				

ENGAGEMENT CATEGORY: 28
OBJECTIVE: 28B

		OBJE	OLIVE. 202	
		OWN TANK		
WEAPON	TANK MOTION	TURRET	CON	TROLS
MG	M	STAB _		ER +
COAX +	s <u>+</u>	NONSTAB _	+ MAN	UAL
	· GPS TIS	<u>LRF</u> <u>LEAD</u>	CROSSWIND	CANT
FUNCTION MALFUNCTION	<u>+</u> +	+ +	_+_	_+_
	·	TARGET		
TGT MOTION	TGT NUMBER		GE	vis
		MED (500-1		IS
$\frac{M + }{5 + (.50)}$	Cal) SIMUL +	LONG (1501	-3000) V	IS/TIS +
	MULT	-		
		CRITERIA		
TIME (Seconds)				
Main Gun Engagem	ents			TC GNR
From start of fir From Gunner "Iden	sure to start of i re command to fini ntify" to select a	sh of lay for dir	ection: and lase:	
	Identified" to se o first round fire		rack, and lase	• —
	on of lase to firs		tuat usus	
miss):	impact to second	round lired (11 f.	irst round	or
.50 Caliber Enga	gements			
From target expos	sure to target sup	pression:		
Coax Engagements				
	sure to start of f			
	re command to fini ntify" to select c		ection:	
	racking to target			
AIMING ERROR				
Dry Fire-Main Gu	n_		First Round	Second Round
	from center of ma		mils	mils
	from center of mas from base of targ		mils	mils mils
	from base of targe		mils	mils
Live Fire-Main G	un, Coax, .50 Cali	ber	Rounds	
Main Gun Coax				
SO Caldham				

B-85

ENGAGEMENT CATEGORY: 28

OBJECTIVE: 28C

		OWN TANK		
WEAPON MG ± COAX .50 CAL	TANK MOTION M S +	TURRET STAB NONSTAB	POWI	FROLS ER JAL +
FUNCTION MALFUNCTION	<u>GPS</u> <u>TIS</u>	LRF LEAD + +	CROSSWIND +	<u>+</u>
		TARGET	 	
TGT MOTION M + S	TGT NUMBER SINGLE + SIMUL MULT	MED (500-1		
		CRITERIA		
TIME (Seconds)				
Main Gun Engageme	nts			TC GNR
From start of fir From Gunner "Iden From Gunner "Not From TC "Fire" to From TC completion	e command to fini tify" to select a Identified" to se first round fire n of lase to firs	lect ammo, lay, to d:	ection: and lase: ack, and lase:	or
.50 Caliber Engage	 _			
From target expos	ure to target sup	pression:		
From target exposions start of fire from Gunner "Iden From finish of transfer of the fire from finish of transfer from finish	e command to fini- tify" to select c	sh of lay for dire oax, lay, track:	ection:	
AIMING ERROR Dry Fire-Main Gun			First Round	Second Round
Deflection error fileston error file	from center of mar rom center of mas from base of targ	s (Precision): et (Battlesight):	mils mils mils mils mils	mils mils mils mils mils
Live Fire-Main Gu	n, Coax, .50 Cali	ber	Rounds	
Main Gun Coax .50 Caliber			77,577,444,444	

TIME (Seconds)

Main Gun Engagements

ENGAGEMENT CATEGORY: 29

TC

GNR

OBJECTIVE: 29A

!			OWN TAN	K		
WEAPON	TANK	MOTION		TURRET	CONTI	ROLS
MG + COAX .50 CAL	M S	+		STAB NONSTAB +	POWEI MANUA	
	GPS	TIS	LRF	LEAD	CROSSWIND	CANT
FUNCTION MALFUNCTION	<u>+</u>	+	+	<u>+</u>	+	+

·	TA	RGET	
TGT MOTION M + S	TGT NUMBER SINGLE + SIMUL MULT	RANGE MED (500-1500) LONG (1501-3000) +	VIS VIS VIS/TIS

From target exposure to start of initial fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select ammo, lay, track, and lase: From Gunner "Not Identified" to select ammo, lay, track, and lase: From TC "Fire" to first round fired: From TC completion of lase to first round fired:	
From first round impact to second round fired (if first round miss):	or
.50 Caliber Engagements	
From target exposure to target suppression:	
Coax Engagements	
From target exposure to start of fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select coax, lay, track: From finish of tracking to target suppression:	
AIMING ERROR	
Dry Fire-Main Gun First Round	Second Round
Deflection error from center of mass (Precision): Elevation error from center of mass (Precision): Deflection error from base of target (Battlesight): Elevation error from base of target (Battlesight): mils	mils mils mils mils mils
Live Fire-Main Gun, Coax, .50 Caliber Rounds	
Main Gun Coax .50 Caliber B-87	

ENGAGEMENT CATEGORY: 29

		OBJE	CTIVE: 29B	
		OWN TANK	·	
WEAPON	TANK MOTION	TURRET	CON	TROLS
MG + COAX	s <u>+</u>	STAB NONSTAB	P OW MAN	ER + UAL
	GPS TIS	LRF LEAD	CROSSWIND	CANT
FUNCTION MALFUNCTION	+ +	+ +	+	+
		TARGET		
TGT MOTION M + S	TGT NUMBER SINGLE SIMUL MULT +			VIS IS + IS/TIS
		CRITERIA		
TIME (Seconds)				
Main Gun Engageme	ents			TC GNR
From start of fir From Gunner "Idented From Gunner "Not From TC "Fire" to From TC completion	sure to start of in re command to finish atify" to select an Identified" to select of first round fired on of lase to first impact to second	sh of lay for dirent of the state of the sta	ection: and lase: rack, and lase	: or
.50 Caliber Engag	gements			
From target expos	sure to target supp	pression:		
From Start of fir From Gunner "Iden	sure to start of fire command to finishing to select contacting to target a	sh of lay for direcax, lay, track:	ection:	
Dry Fire-Main Gur			First Round	Second Round
Deflection error Elevation error Deflection error	from center of mass from center of mass from base of targe from base of target	(Precision): et (Battlesight):	mils mils mils mils mils	mils mils mils mils mils
	ın, Coax, .50 Calil	<u>per</u>	Rounds	
Main Gun Coax .50 Caliber				

ENGAGEMENT CATEGORY: 29

OBJECTIVE: 29C

OWN TANK							
WEAPON	TANK	MOTION		TURRET	CONTR	ROLS	
MG COAX + .50 CAL +	M S	+		STAB NONSTAB +	POWEI MANUA		
	GPS	TIS	LRF	LEAD	CROSSWIND	CANT	
FUNCTION MALFUNCTION	+	+	+	+		+	

	TA	RGET	
TGT MOTION M + S + (.50 Cal)	TGT NUMBER SINGLE SIMUL + MULT	RANGE MED (500-1500) LONG (1501-3000)	VIS VIS VIS/TIS +

TIME (Seconds)			
Main Gun Engagements		TC	GNR
From target exposure to start of initial fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select ammo, lay, track, and lase: From Gunner "Not Identified" to select ammo, lay, track, and lase: From TC "Fire" to first round fired: From TC completion of lase to first round fired: From first round impact to second round fired (if first round miss):			
.50 Caliber Engagements			
From target exposure to target suppression:			
Coax Engagements			
From target exposure to start of fire command: From start of fire command to finish of lay for dire From Gunner "Identify" to select coax, lay, track: From finish of tracking to target suppression: AIMING ERROR	ction:		
Dry Fire-Main Gun	First Round	Second	Round
Deflection error from center of mass (Precision): Elevation error from center of mass (Precision): Deflection error from base of target (Battlesight): Elevation error from base of target (Battlesight):	mils mils mils mils		mils mils mils mils
Live Fire-Main Gu., Coax, .50 Caliber	Rounds		
Main Gun Coax .50 Caliber B-89			

ENGAGEMENT CATEGORY: 30

OBJECTIVE: 30A

OWN TANK TANK MOTION TURRET CONTROLS WEAPON STAB POWER + MG NONSTAB + MANUAL _ COAX .50 CAL LRF LEAD CROSSWIND CANT GPS TIS FUNCTION + MALFUNCTION

	TA	ARGET	
TGT MOTION	TGT NUMBER	RANGE	VIS
M + s	SINGLE SIMUL MULT +	MED (500-1500) + LONG (1501-3000) +	VIS + VIS/TIS -

TIME (Seconds)				
Main Gun Engagements			TC	GNR
From target exposure to start of in From start of fire command to finis From Gunner "Identify" to select am From Gunner "Not Identified" to sel From TC "Fire" to first round fired From TC completion of lase to first From first round impact to second r miss):	or			
.50 Caliber Engagements				
From target exposure to target supp	ression:			
Coax Engagements				
From target exposure to start of fi From start of fire command to finis From Gunner "Identify" to select co From finish of tracking to target s				
AIMING ERROR	······			
Dry Fire-Main Gun	·	First Round	Second	Round
Deflection error from center of mas Elevation error from center of mass Deflection error from base of targe Elevation error from base of target	(Precision): t (Battlesight):	mils mils mils mils mils		mils mils mils mils
Live Fire-Main Gun, Coax, .50 Calib	er	Rounds		
Main Gun Coax .50 Caliber	-90	`` 		

ENGAGEMENT CATEGORY: 30 OBJECTIVE: 30B

		O/01 MANY		γ			
1 manon	m11W/ 1/08701	OWN TANK	20	Tot 6			
WEAPON	TANK MOTION	TURRET		ROLS			
MG +	M	STAB NONSTAB	POWE MANU				
.50 CAL							
	GPS TIS	LRF LEAD	CROSSWIND	CANT			
FUNCTION	+ +		+	+			
MALFUNCTION		<u> </u>	•				
<u> </u>							
		TARGET		İ			
TGT MOTION	TGT NUMBER	RAN	<u>ige</u>	VIS			
M + S	SINGLE +	MED (500-1					
s	SIMUL MULT	LONG (150)	(-3000) + VI	s/TIS +			
CRITERIA							
TIME (Seconds)							
Main Gun Engageme	ents			TC GNR			
From target expos	sure to start of in	nitial fire comma	ind:				
	re command to finis						
	itify" to select an Identified" to sel						
From TC "Fire" to	first round fired	d:	·				
	on of lase to first impact to second i		irst round				
miss):	anpado do documa .			or			
.50 Caliber Engag	gements						
From target expos	sure to target supp	pression:					
Coax Engagements	-						
	sure to start of fi						
	re command to finishtify" to select co		ection:				
	racking to target						
AIMING ERROR							
Dry Fire-Main Gur	<u></u>		First Round	Second Round			
	from center of mas		mils	mils			
	rom center of mass		mils	mils			
	from base of targe from base of target		mils mils	mils mils			
	in, Coax, .50 Calib		Rounds				
Main Gun		- 					
Coax							

B-91

ENGAGEMENT CATEGORY: 30

OBJECTIVE: 30C

			OWN TAI	NK		
WEAPON	TANK	MOTION		TURRET	CONTI	ROLS
MG COAX + .50 CAL +	M S	+		STAB NONSTAB +	POWER MANUA	
	GPS	TIS	LRF	<u> LEAD</u>	CROSSWIND	CANT
FUNCTION MALFUNCTION	_+_		+	+	+	+

	TA	RGET	
TGT MOTION	TGT NUMBER	RANGE	<u>vis</u>
M _+ S _+(.50 Cal)	SINGLE SIMUL + MULT	MED (500-1500) <u>+</u> LONG (1501-3000)	VIS VIS/TIS

TIME (Seconds)	 		
Main Gun Engagements		TC	GNR
From target exposure to start of initial fire command: From start of fire command to finish of lay for direct: From Gunner "Identify" to select ammo, lay, track, and From Gunner "Not Identified" to select ammo, lay, track From TC "Fire" to first round fired: From TC completion of lase to first round fired: From first round impact to second round fired (if first miss):	or		
.50 Caliber Engagements			
From target exposure to target suppression:			
Coax Engagements			
From target exposure to start of fire command: From start of fire command to finish of lay for direct: From Gunner "Identify" to select coax, lay, track: From finish of tracking to target suppression: AIMING ERROR			
Dry Fire-Main Gun F	irst Round	Second	Round
Deflection error from center of mass (Precision): Elevation error from center of mass (Precision): Deflection error from base of target (Battlesight): Elevation error from base of target (Battlesight):	mils mils mils mils		mils mils mils mils
Live Fire-Main Gun, Coax, .50 Caliber Ro	ounds		
Main Gun Coax .50 Caliber B-92			

ENGAGEMENT CATEGORY: 31

OBJECTIVE: 31A

!		OWN TANK					
WEAPON	TANK MOTION	TURRET	CONT	rrols			
MG + COAX .50 CAL	M S +	STAB NONSTAB +	POWI				
FUNCTION MALFUNCTION	<u>GPS</u> <u>TIS</u> <u>+</u> <u>+</u>	LRF LEAD + +	CROSSWIND +	<u>CANT</u>			
		TARGET					
TGT MOTION M + s	TGT NUMBER SINGLE SIMUL MULT +	RANG MED (500-15 LONG (1501-		VIS IS IS/TIS +			
CRITERIA							
TIME (Seconds)		<u> </u>					
Main Gun Engagem	ents			TC GNR			
From start of fir From Gunner "Ider From Gunner "Not From TC "Fire" t From TC completion	sure to start of in re command to finish ntify" to select an Identified" to select of first round fired on of lase to first impact to second	sh of lay for dire mno, lay, track, a lect ammo, lay, tr d: t round fired:	ction: nd lase: ack, and lase	: or			
.50 Caliber Enga	gements						
From target expo	sure to target supp	pression:					
From start of fi From Gunner "Ide	- sure to start of fi re command to finis ntify" to select co racking to target s	sh of lay for dire oax, lay, track:	ction:				
Dry Fire-Main Gu	n		First Round	Second Round			
Deflection error Elevation error Deflection error	from center of mag from center of mag from base of targe from base of targe	s (Precision): et (Battlesight):	mils mils mils mils mils	mils mils mils mils			
Live Fire-Main G	un, Coax, .50 Calil	er	Rounds				
Main Gun Coax .50 Caliber							

ENGAGEMENT CATEGORY: 31 OBJECTIVE: 31B

					 		
; ;			OWN TA	.NK			
WEAPON	TANK	MOTION		TURRET		CONTROLS	
MG +	<u>+</u> M			STAB		POWER +	-
COAX	s]	+		NONSTAB +		MANUAL	- {
.50 thi			• •				- 1
	GPS	TIS	LRF	LEAD	CROSSWI	ND CA	INT
FUNCTION		+			+	4	<u> </u>
MALFUNCTION	<u>+</u>	*********	<u>+</u> _			-	
			TARGE	T			
TGT MOTION	•	TGT NUMBER		RANG	<u>E</u>	VIS	
M +	-	SINGLE +		MED (500-15	00)	VIS	
s	;	SIMUL		LONG (1501-		VIS/TIS	<u>+</u>
]	MULT					1
L							
			CRITER	IA			
m							
TIME (Seconds)						Tr.C	GNR
Main Gun Engagem					â	TC	GIV
From target expo From start of fi							
From Gunner "Ide							
From Gunner "Not				mo, lay, tr	ack, and 1	ase:	
From TC "Fire" t From TC completi				fired:			
From first round					rst round		
miss):							or
.50 Caliber Enga	gements_						
From target expo	sure to	target sup	pressio	n:			
Coax Engagements	_						
From target expo							
From start of fi From Gunner "Ide					ction:		
From Gunner lae From finish of t							
AIMING ERROR	J	•					
Dry Fire-Main Gu	n				First Rou	nd Seco	nd Round
Deflection error		nter of ma	ss (Pro	cision):	mi1		mils
Elevation error	from cen	ter of mas	s (Prec	ision):	mil		mils
Deflection error					mil mil		mils mils
Elevation error			_	TEBTRUC):			
Live Fire-Main G	un, Coax	, .50 Call	per		Rounds		
Main Gun Coax							
.50 Caliber							

ENGAGEMENT CATEGORY: 31 OBJECTIVE: 31C

	OWN TANK							
WEAPON MG COAX + .50 CAL +	TANK MOTION M S +	TURRET STAB NONSTAB	POWE					
FUNCTION MALFUNCTION	GPS TIS	LRF LEAD + +	CROSSWIND	<u>CANT</u>				
		TARGET						
TGT MOTION M + S + (.50 C	TGT NUMBER SINGLE SIMUL + MULT	RANG MED (500-15 LONG (1501-	- 500) <u>+</u> VI	VIS S S/TIS +				
CRITERIA								
TIME (Seconds)								
Main Gun Engagements TC GNR From target exposure to start of initial fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select ammo, lay, track, and lase: From Gunner "Not Identified" to select ammo, lay, track, and lase: From TC "Fire" to first round fired: From TC completion of lase to first round fired: From first round impact to second round fired (if first round								
miss): .50 Caliber Engag	-			or				
	sure to target supp	ression:						
Coax Engagements	_							
From Start of fin From Gunner "Iden	From target exposure to start of fire command: From start of fire command to finish of lay for direction: From Gunner "Identify" to select coax, lay, track: From finish of tracking to target suppression:							
AIMING ERROR								
Dry Fire-Main Gur			First Round	Second Round				
Elevation error in Deflection error	from center of mas from center of mass from base of targe from base of target	mils mils mils mils mils	mils mils mils mils					
Live Fire-Main Gu	in, Coax, .50 Calib	er	Rounds					
Main Gun Coax .50 Caliber	_							

APPENDIX C
TRAINING RESOURCE REQUIREMENT FORMS

PERSONNEL REQUIREMENTS

Please provide the information requested below for each person involved in the planning, development, conduct, and evaluation of the gunnery sustainment training program.

Name:		Rank/	Grade:	Mos:		
Function (See Note A)		caining Group (See Note B)	Role (P/S) See Note C)	Time (hours) (See Note D)		
Planning	I: II: III:	XM1 Baseline Chrysler UCOFT GE UCOFT				
Development	I: II: III:	XM1 Baseline Chrysler UCOFT GE UCOFT				
Conduct	I: II: III:	XM1 Baseline Chrysler UCOFT GE UCOFT				
Evaluation	I: II: III:	XM1 Baseline Chrysler UCOFT GE UCOFT				

- Note A: Planning includes scheduling, determining personnel and equipment requirements, logistics, etc.
 - <u>Development</u> includes writing and review of lesson plans, test materials, etc.
 - Conduct includes actual training and testing time during implementation.
 - <u>Evaluation</u> includes pre- and post-training testing and transfer study testing.
- Note B: Group I soldiers are trained on the XM1 tank only.

 Group II soldiers are trained on the Chrysler UCOFT.

 Group III soldiers are trained on the GE UCOFT.
- Note C: Primary (P) Role means the person directed or was responsible for major portions of work in that function.

 Support (S) Role means the person assisted or was under the super-

vision of someone in a primary role.

- If neither, leave blank.
- Note D: If the time expended on a function is for more than on training group, record the time whereever applicable, and attach a note telling how many hours are recorded for more than one group and for which functions/groups they are recorded.

CREW TRAINING REPORT FORM

Please provide the information requested below for each crew (gunner and tank commander) in the gunnery sustainment training program.

Training Group: XM1 Baseline	Cre	w Number:	,		
Chrysler UCOFT					
GE UCOFT					
GUNNER	TANK	COMMANDER			
Name:	Name:			- <u></u>	
Date Completed Transition Training:	Date Compl	eted Transit	ion Trainin	g:	
Months as Gunner:	_ Months as	TC:			
Fired together in these crew positions?	Yes Number of Times:				
	No				
Block/Objective	Date/Time Started	Date/Time Mastered		Total Time	
(List all training blocks and objectives)				·	
					
					
	•	•	•	•	
	•	•	•	٠	
	•	•	•	•	
		B1	ock Total		

GUNNERY OBJECTIVE SCORESHFFT

XM1 Bascline Chrysler UCOFT GE UCOFT	4 5							
CREW NUMBER: COMMANDER: GUNNER: TRAINING GROUP:	TRIAL 3							
~	2							
St (Once ree est (F1	20 E							
XM1 Pretest Device Pretest Training (Th Device Postte XM1 Posttest	STANDARD	(TC) (TC) (GNR) (GNR) (GNR)	(TC)	(TC) (TC) (GNR) (GNR)	un o	t (mils) (mils) t (mils) (mils)	· O	
VE: TRAIMING PHASE:	TIME (Seconds) Main Gun Engagements	Target to start fire command: Start fire command to finish lay: GNR "ID" to select ammo, lay, track, lase: GNR "Not ID" to select ammo, lay, track, lase: TC "FIRE" to lst rd. fired: 1st rd. impact to 2nd rd. fired (if miss):	.50 Caliber Engagements Target to suppression: Coax Engagements	Start fire command: Start fire command to finish lay: Gunner "ID" to select coax, lay, track: Pinish track to suppression: AIMING ERROR Dry Fire - Main Gun	Def. El. 1 Def. El. 1	- 1st Rd. Def. from base of target El. from base of target 2nd Rd. Def. from base of target El. from base of target		No. of Rds. fired: Suppressed (Yes/No):
OBJECTIVE:	TIME (Seconds) Main Gun Engag	Target to Start fil. GNR "ID" GNR "Not TC "FIRE" 1st rd.		Target to str Start fire co Gunner "ID" Finish track AIMING ERROR Dry Fire - M	Prec.	B-sight Live Fire	Main Gun: .50 Cal:	Coax: